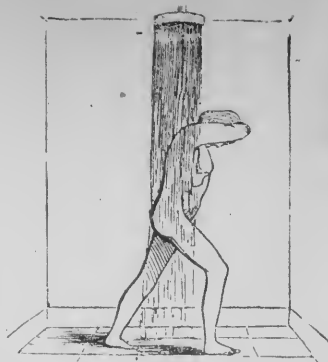


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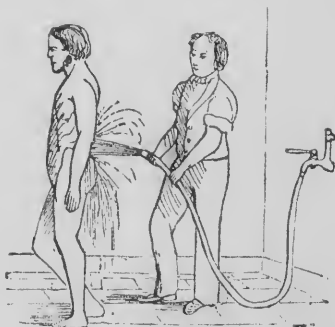
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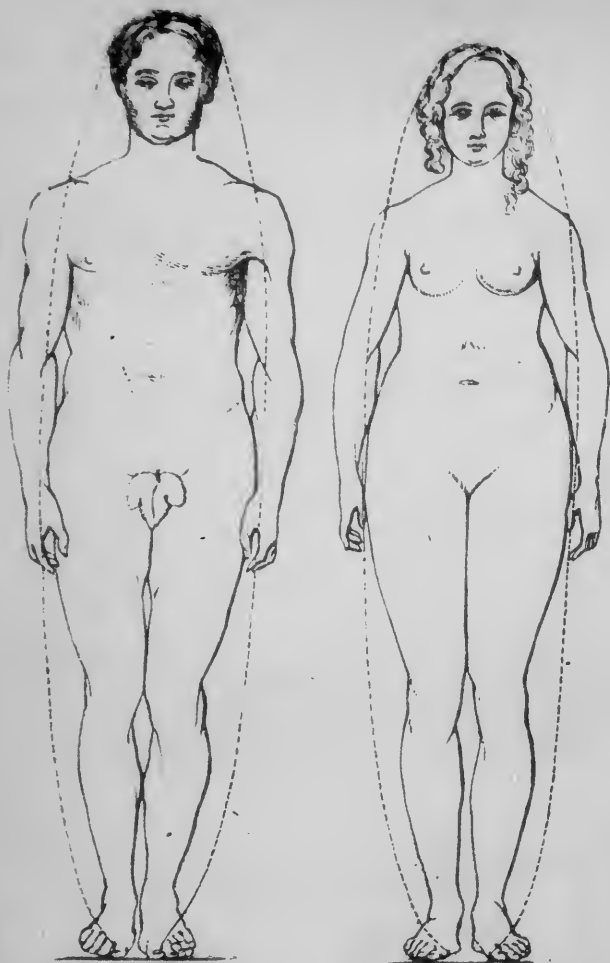
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THE  
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READY PRESCRIBER AND HYGIENIC ADVISER

WITH REFERENCE TO THE

NATURE, CAUSES, PREVENTION, AND TREATMENT OF DISEASES, ACCIDENTS, AND CASUALTIES OF EVERY KIND.

BY JOEL SHEW, M.D.

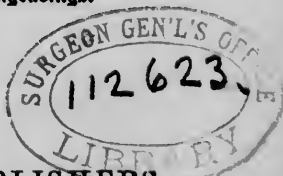
AUTHOR OF "WATER-CURE MANUAL;" "CHILDREN: THEIR DISEASES AND MANAGEMENT,"  
"CONSUMPTION: ITS CAUSES, PREVENTION, AND CURE;" "HYDROPATHY, OR WATER-  
CURE;" "MIDWIFERY, AND DISEASES OF WOMEN," ETC., ETC., ETC.

Illustrated with nearly Three Hundred Engravings.

NEW YORK.  
FOWLER AND WELLS, PUBLISHERS,  
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## Preface.

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IN writing the "HYDROPATHIC FAMILY PHYSICIAN," the author has had several things in view. First—he has considered that hydropathic physicians, for obvious reasons, can not, for a long time yet, become so numerous as to afford all who desire it their professional aid. Second—the great mass of those who have confidence in the method have not the means to enable them to go to an hydropathic establishment. Third—it is the duty of the physician, as far as he is capable, to teach the people the *prevention* of disease.

Hydrophy, or the Water-Cure—a system which has for its prophylactics and medicaments water, air, exercise, and diet, is the greatest of all medical improvements known to man. It is an improvement which is destined, not only to make the members of communities their own physicians for the most part, but to mitigate, in an unprecedented manner, the extent, the pains, and the perils of disease.

The present work is designed as a POPULAR one. The object has been, to make it the most full and explicit, with reference to the nature, causes, symptoms, and treatment of diseases and accidents, of any similar work extant.

In the old country, no one, Priessnitz perhaps excepted, has ever thought of placing Water-Cure upon a footing with other systems in *private* practice. But here the case is different. Inge-

nious, persevering Americans will not allow so great an improvement to pass. Home treatment will be made here to do its thorough work. If pure water is so much better than calomel and opium among the mountains of Austrian Silesia, why not in London, Paris, and New York? And have we not already proved the practicability of the new method wherever we can obtain water of so good quality as the Croton, the Schuylkill, and the Cochituate, with the aid also of a few sheets, bandages, and a wash-tub for a bath?

With regard to the arrangement of subjects in the present volume, convenience alone has for the most part been consulted. In general, before proceeding to speak of the diseases or injuries of any particular organ, or set of organs, these have been to some extent anatomically, physiologically, and hygienically explained. Illustrative engravings, also, of various kinds have been freely interspersed throughout. The object has been thus to render the volume more interesting, as well as useful.

The HUNGER-CURE, as applicable in chronic disease, is here for the first time published in this country. This system, which, in its proper place, is so valuable, is yet destined to become a useful adjunct of water treatment. It has for a long time been carried on in the Silesian mountains of Germany, under the same sanction of government and the same police surveillance that has been placed over the Water-Cure.

J. S.

NEW YORK, *January 1st, 1854.*

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# Hydropathic Family Physician.

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## CHAPTER I.

### PRELIMINARY OBSERVATIONS.

#### HEALTH AND DISEASE.

It is difficult accurately to define health. In general terms, it may be said that "health consists in the integrity of every structure, and the perfect and harmonious play of every function."

Perfect health, at the present day, among civilized nations, is probably nowhere to be found. It exists only as an ideal thing.

In its more common acceptance, health is a variable condition, differing widely in different persons, and in the same person at different times. The terms *perfect, good, robust, strong, feeble, delicate, etc.*, are used to designate these degrees of the healthfulness of the living structure.

Disease is a departure from health. It is not a natural condition; and if man were sufficiently intelligent and strong in his moral power to avoid the *causes* of disease, he would live on healthfully from infancy to a good old age. But in the present state of knowledge and human attainments, no one can expect to live wholly free from bodily ailment. It should be remembered, nevertheless, that the voluntary habits of the individual vary the health conditions in a remarkable degree—more, in most cases, than all other agencies combined. To a very great extent we *manufacture* our own diseases, or preserve our existing state of health.

#### CHARACTER OF DISEASE.

Disease is said to be either *acute* or *chronic*. Some diseases come on suddenly, last usually but for a short time, and then terminate either in health or death. These are said to be acute. Some have also sub-

divided *acute* diseases into *most acute*, when they terminate in from one to three or four days; *very acute*, when they do not extend beyond the seventh day; *acute*, when they last from seven to fourteen days; and *sub-acute*, when they reach beyond this period.

Other diseases, again, come on more slowly, and last for a long time, and are called *chronic*. But, whether it comes on quickly or slowly, a disease that lasts from thirty to forty days, or more, is said to be *chronic*. The terms *acute* and *chronic*, then, as used in reference to disease, are arbitrary terms, relating only to *length of time*.

Most diseases are in the beginning *acute*, although, in some cases, a bodily ailment invades the system so imperceptibly, that no precise period for its beginning can be fixed upon. In such case it would hardly be proper to say that the attack was of an *acute* nature. When the symptoms of a disease are of a severe and pressing character, Nature, either alone or assisted by art, must soon bring relief, or the individual is lost. *Acute* disease is, as a general fact, much more easily cured than *chronic*.

There are several other terms, used in medical writings, to designate the different grades and characters of disease.

An *epidemic* disease is one that attacks a number of persons at the same time. Fever, small-pox, scarlatina, cholera, etc., are said to be *epidemic* when they prevail in any particular locality to a considerable extent.

An *endemic* disease is one that is peculiar to a particular locality, such as *ague*, *goiter*, etc. Some diseases are both *endemic* and *epidemic*; that is, one or the other, according to the circumstances under which they occur.

A disease is said to be *sporadic* when it attacks only one or a few persons at a time. Both *epidemic* and *endemic* diseases may be *sporadic*.

A *contagious* disease is one that is communicable, directly or indirectly, from one patient to another. Cholera, certain forms of fever, etc., are often spoken of as *contagious*.

An *infectious* disease is one that requires positive contact to cause it to spread from one person to another. The itch is an *infectious* disease. Latterly, however, the words "*contagion*" and "*infection*" are used generally as synonymous.

Disease is said to be *hereditary* when it is transmitted from parent to child, or from ancestor to descendant; for disease is supposed in some cases to pass over one or two generations before it makes its appearance. Strictly speaking, disease is seldom *hereditary*, the *predisposition only* being entailed upon the offspring. In some cases, how-

ever, the child is born with the disease of the parent actually upon him. This is true of small-pox, tubercular disease, syphilis, etc.

A *continued* disease is one that runs its course steadily and without interruption of the symptoms.

An *intermittent* or *periodical* disease is one that is interrupted by intervals of health.

A disease is *remittent* when it has periods of augmentation and diminution of symptoms alternately. Almost any disease is more or less of this character.

In *structural* disease there is some alteration of structure in the diseased part.

In *functional* disease the part affected does not perform its natural office properly. The same organ may be both structurally and functionally diseased at the same time.

*Organic* disease is such as affects some particular organ of the body.

A *common* disease is one that presents only the more usual forms of inflammatory action.

*Specific* diseases are such as are peculiar in their nature, and have a tendency always to produce their kind.

The term *malignant* is applied to any disease that takes on an aggravated form. Cancer is said to be malignant, because it has a tendency to spread to any part of the body, and is exceedingly obstinate in its character. A *mild* disease is one that yields readily to the curative powers of the system.

#### FORMS OF DISEASE.

In common, as also in medical parlance, the word *irritation* is often used to denote a state of diseased action. Says Dr. Wood, "Any morbid excitement of the vital action not amounting to inflammation is denominated irritation." But others, such as Dr. Billing, argue that there can be no such thing as irritation without inflammation—that the slightest blush upon the cheek, for example, is in reality nothing more nor less than a degree of inflammatory action, but which may come and go in a moment. It is necessary to explain these distinctions, inasmuch as the word irritation is, for the sake of convenience, so often used.

With reference to irritation, if we hold to the use of that word in some cases instead of inflammation, we are to notice that its results are yet precisely the same as those of a moderate degree of the latter. These will be spoken of in the proper place.

*Inflammation* is a morbid condition of a part characterized by in-

creased redness, increased heat, pain, and swelling. A common boil affords a good illustration of inflammatory action. Whenever a part becomes inflamed, the blood flows to the capillary vessels in greater abundance than natural, and these vessels become over dilated and enfeebled; "whence result pain, redness, heat, tension, and swelling: symptoms which appear in greater or less severity according to the structure, vital proportions, and functions of the part affected, and its connection with other parts, as well as according to the constitution of the individual."

*Inflammation* is divided into two species: *phlegmonous* and *erysipelatous*. It is also said to be either *acute* or *chronic*, *local* or *general*, and *simple*, or *complicated with other diseases*.

*Phlegmonous* inflammation is known by a bright red color, tension, heat, and a circumscribed, throbbing and swelling of the part.

The *terminations* in this kind of inflammation are *resolution*, *suppuration*, *gangrene*, and *scirrhus* or *induration*.

By *resolution* is meant a gradual fading away of the disease. It is known to be about to take place when the symptoms gradually abate, leaving no unpleasant traces behind.

*Suppuration* is known by the coming on of slight chills; by remission of the pain, which, from being lancinating, becomes heavy; by a sense of weight in the part, attended with occasional darting pains, which indicate that pus is being formed. An *abscess* consists of pus in one or more cavities the disease has made. If the pus comes upon a surface that is exposed to the air, it constitutes what is termed an *ulcer*.

*Gangrene* or *mortification* signifies the death or destruction of a part. When it is about to take place in any considerable organ or part, the pain abates, the pulse sinks, and cold perspiration supervenes.

*Scirrhus* or *hardening* is known by the inflammation continuing a longer time than usual; the tumefaction continues, and a considerable hardness remains. This kind of tumor gives little or no pain, and, when it takes place, is usually the sequel of inflammation affecting glandular parts. It sometimes, however, is accompanied with lancinating pains, ulcerates, and becomes cancerous in the end.

*Erysipelatous* inflammation has a dull red color, vanishes upon pressure, spreads unequally, with a burning pain, the swelling often scarcely perceptible, but at other times considerable, and ending with either vesicles or desquamation. The fever attending this kind of inflammation is either of a high or low grade, according to the individual's constitution and the nature of the attack. For further information on this subject, the reader is referred to the article on *Erysipelas*, in another part of this work.

## THE TEMPERAMENTS.

From the earliest periods of the medical art, certain differences of constitution have been recognized as belonging to the human family. These differences are denominated *temperaments*. The temperament of an individual always exerts a greater or less influence in disease.

Four temperaments are generally recognized at the present day: the *sanguine*, the *phlegmatic*, the *bilious*, and the *nervous*; sometimes, also, a *melancholic* temperament is spoken of.

In the *sanguine* temperament (see fig. 1) there is fair or moderate plumpness of body, and firmness of flesh. This temperament is most favorable to what is ordinarily considered "beauty of person." The complexion is fair and rather florid, the skin soft and thin, the eyes blue, the hair auburn, reddish, or light chestnut. The mind is active and excitable, perhaps unsteady; the countenance is animated, and the movements quick; the circulation strong and active, and the pulse full.

The *phlegmatic* temperament (see fig. 2), as the name signifies, is characterized by roundness and plumpness of form, softness and weakness of the muscles, more or less obesity, especially as age advances; thick lips, pale skin, light or gray eyes, and fair hair. The circulation is languid, the pulse slow and small, and all of the functions, bodily and mental, more sluggishly.

Fig. 1.



SANGUINE TEMPERAMENT.

Fig. 2.



PHLEGMATIC TEMPERAMENT.

Fig. 3.



BILIOUS TEMPERAMENT.

Fig. 4.



NERVOUS TEMPERAMENT.

In the *bilious* temperament (see fig. 3) there is much firmness, and a moderate fullness of flesh, with strongly marked features, and a somewhat rough or harsh appearance of person generally. The hair, eyes, and complexion are dark; the pulse is full, firm, and of moderate frequency. This is the temperament which gives the greatest energy of character, bodily and mental power, and endurance.

In the *nervous* temperament (see fig. 4) the form is rather small, the muscles slender, the features delicate, the upper lip thin, the movements quick, and the countenance pallid. Persons of this temperament are more liable than others to feeble health. The movements and the bodily functions are active, and the mental and moral manifestations are excitable in a remarkable degree.

The term *melancholic* is often used as referring to temperament. Persons of the melancholic temperament are marked by a "peculiar calmness and seriousness of mind, with a great tenacity of impressions, and a tendency to indulge in gloomy thoughts." This temperament is very nearly allied to the bilious.

Two or more of these temperaments are usually united in the same individual. A pure specimen of a single temperament is seldom met with. In many cases the temperaments are so combined it is difficult to say which predominates with the individual.

Temperament exerts a considerable influence as regards disease. Those of the *sanguine* temperament are more liable to acute and inflammatory affections and to active hemorrhages; those of the *phlegmatic* to congestions and subacute inflammation, to glandular and tubercular diseases; the *bilious* to diseases of the digestive organs; and the *nervous* to nervous diseases and affections of the mind.

The term *diathesis*, as referring to conformation and appearance, is often used in medical works. Thus, persons having a fair complexion and delicate skin, with fine fair hair, blue or gray eyes, long eyelashes, and a thick upper lip, are said to be of the *scrofulous* diathesis. Those of this general conformation of body are also sometimes said to be of the *consumptive* diathesis, although consumptive persons not unfrequently have a thin upper lip. A person who is subject to gout is said to be of the *gouty* diathesis; to rheumatism, the *rheumatic* diathesis.

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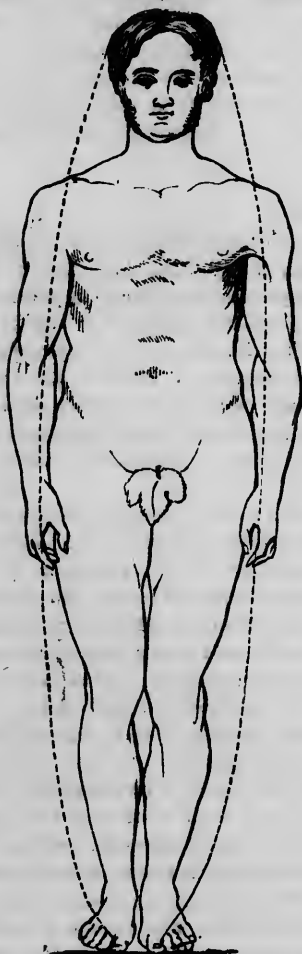
If we look abroad upon the great and ever-varying works of Nature, we find that she has provided "every living thing that moveth" liberally with germs. Thus are living beings permanent in perpetuity and kind. This germ-producing is effected through a variety of means and methods of arrangement. So, also, of the impregnating process. In some orders of animal life, as, for example, the earth-worm, both the powers of fecundity and germination devolve upon the same creature; in others, as the higher orders, there are found two independent forms of being for carrying on the procreative function—the male and the female.

Concerning the power of propagation in the human species, we read in the Word of God, "male and female created he them," and also the command "to multiply and replenish the earth." Sex, then, is the work of an Almighty hand—a wisely-ordered and benevolently-adapted distinction among human kind—a distinction which is so permanent, so fixed in its character, that no human means, however powerful, or however adroitly employed, can change it. Even were the sexual peculiarities modified, or, if we will, destroyed, we yet find that the general character of the individual portrays plainly and indubitably the great general distinctive features of sex.

One of the first and most striking differences to be observed is that of stature. The bony framework of man is of a stronger and more enduring make. Even the casement of the brain—the *cranium*, as scholars call it—is thicker, larger, and less pliant than in the female. The conformation of the female shows that she was designed for the lighter and more easy physical tasks of life. She should, it is true, toil and "eat bread in the sweat of her brow," but not in the same sense as man. The latter pursues rightly the labor of digging the earth's surface, of blasting its rocks, of felling its trees, of navigating its oceans, of loading and unloading ships, and of carrying commerce to all habitable portions of the earth; while the female is fitted for

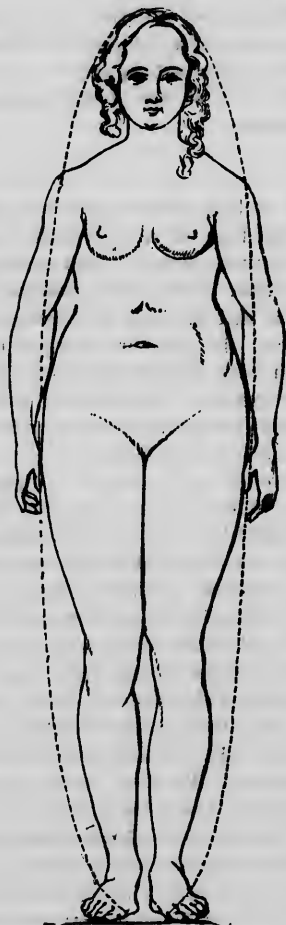
in-door occupations, such as require a less amount of physical strength.

Fig. 5.



MALE.

Fig. 6.



FEMALE.

In an anatomical sense, the sexes each present several peculiarities. The human male is on an average from one third to one fourth



larger than the female. The male is also proportionately stronger than the female, which would seem to indicate that *man* is to perform the world's drudgery, or more laborious work, and that *woman* is to attend to those lighter duties which are everywhere, in the most civilized parts of the world, chosen by her. Not only is she on a lower scale than man, as regards ordinary physical power, but her anatomical conformation shows that she is not by nature so well calculated for locomotion or pedestrianism as man. Her chest is smaller in proportion, and her hips are wider, for a manifest purpose; so that she walks with a less firm and enduring gait than man.

Woman's brain, also, being relatively smaller than man's, would seem to indicate that the latter is to do more than an equal proportion of mental labor. It is admitted that woman's sensibilities are finer and more acute than man's, and that if she is his inferior in some respects, she is equally his superior in others. I wish it to be most distinctly understood in this connection, that I do not assert that woman is in the least inferior to man in all that pertains to virtue, goodness, morality, and usefulness in the world. Who, indeed, that has grown to manhood has not felt the potency and the majesty of woman's moral power? And in that most benevolent mission of ministering to the sick, who does not recognize the superiority of woman, her patience, her perseverance, her untiring assiduity, and sympathizing care?

There is also a marked difference between the diseases of males and females, irrespective of those belonging to the organs of generation, or which spring out of the peculiar functions of the female system. We observe in man more tone, strength, and rigidity of fiber, which renders him more liable to high febrile and inflammatory affections; in woman there is, on the other hand, more sensibility and excitability, a less firm fiber, and consequently a stronger tendency to nervous diseases. Menstruation, parturition and lactation also exercise a strong influence over the female system in the production of various diseases.

Dr. Hooper informs us, that on referring to a table of nearly twenty thousand cases of disease, treated as in or out patients, at King's College Hospital, he found that while the two sexes are nearly equally liable to febrile affections, the contagious exanthumata, ordinary diseases of the skin and of the bones, and to tumors, males are more liable to rheumatism, gout, apoplexy, paralysis, mental disorders, diseases of the lungs, of the heart and arteries, of the urinary organs, of the organs of sense, and to inflammation; and females to catarrhal affections, dropsies not dependent upon organic disease, convulsive

and neuralgic affections, diseases of the stomach and bowels, and intestinal worms. It is obvious that the diseases to which males are subject are of a more fatal character, an inference that is confirmed by the longer life enjoyed by the female. All statistics prove that females, notwithstanding their natural delicacy of constitution, have greater vital tenacity than males. Even when we take into account the fact, that numbers die in childbed and with fatal diseases of the generative organs, we yet find that the female constitution exhibits a greater degree of vital endurance than that of the male.

It is a remarkable fact in nature, and one that has an important bearing in the treatment of disease, than females bear the loss of blood, and other means of depletion, better than males do. The female, in consequence of possessing the menstrual function, and being exposed to the accidents of childbirth, is more subject to hemorrhage than the male. In striking accordance with this fact in nature, it appears to have been a benevolent intention of the Creator to form the female system in such a manner that it more readily recovers from profuse loss of blood than that of the opposite sex. Females, also, who suffer from diarrheas and other exhausting discharges, are always more readily cured than males under similar circumstances. These facts are not less interesting than important in a practical sense.

#### RACES OF MANKIND.

Writers upon ethnology admit five distinct races in the human family—the *Caucasian*, *Mongolian*, *Ethiopian*, *American*, and *Malay*; but all distinctions of this kind must be, for obvious reasons, to a considerable degree arbitrary.

The CAUCASIAN RACE (see fig. 7), to which we belong, includes

Fig. 7.



CAUCASIAN RACE.

the Assyrians, Medes, Persians, Jews, Egyptians, Chaldeans, Georgians, Circassians, Armenians, Turks, Arabs, Syrians, Affghans, Hindoos of high caste, Moors of Northern Africa, Greeks and Romans, and modern Europeans, not including Laplanders. It is among this race that the arts and sciences have been carried to their highest point of cultivation, and skill and intellect to their mightiest results. The history of this race is the history of civilization, refinement and of Christianity itself.

This variety of our species presents the best specimens of beauty and symmetry of body as well as of the highest intellectual development. The skull is large, rounded, and oval, the forehead large and elevated, and the face well proportioned. The hair is usually fine and long, and the skin fair.

The **MONGOLIAN RACE** (see fig. 8) comprises the Mongols, Calmucks, Korians, Chinese, Japanese, the inhabitants of Thibet, Tonquin, Siam, Cochin China, Himalaya Mountains, Hindoostan, Ceylon, Kamschatka, Asiatic Russia, Finland, Lapland, Greenland, etc. This race is next to the Caucasian in the scale of civilization, but is not celebrated for mental power.

In this race the skull is oblong, but flattened, the forehead low, the cheek-bones broad and flat, the hair long and straight, and the skin of an olive tint.

The **ETHIOPIAN RACE** (see fig. 9) comprises the inhabitants of Africa, not including the north, the Caffres, Hottentots, Australians, and the imported specimens in America and elsewhere.

The Ethiopians have a black skin, small but long and narrow skull, low and retreating forehead, high cheek-bones, projecting teeth, thick lips, and large mouth. Like all other races, the Ethiopians vary much in regard to talent; but in their more natural state the scale of intellectuality is low among them.

The **AMERICAN INDIAN, or RED RACE** (see fig. 10), originally inhabited the American continent, from Cape Horn to the Arctic Regions, and with all their differences are considered as the same over this whole extent.

Ordinarily the people of this race are

Fig. 8.



MONGOLIAN RACE.

Fig. 9.



ETHIOPIAN RACE.

Fig. 10.



AMERICAN INDIAN.

of a reddish-brown color; "the hair is long, straight, and black; the brow deficient; the eyes black and deep-set; brows prominent; forehead receding; aquiline prominent nose; high cheek-bones; skull small and rising at the crown, with the back part flat; large mouth; hard, rough features, with fine, straight, symmetrical frames." They are averse to mental cultivation, and consequently must die away ere long before the "march of civilization."

THE MALAY RACE (see fig. 11) inhabit the Asiatic and Polynesian islands, and exhibit a greater degree

Fig. 11.



MALAY RACE

of intellectuality than either the Indian or the Negro race. Their forehead is broad and low, crown high, mouth broad and large, nose short, hair black, coarse, and straight, skin coarse and dark. The Malays are said to be active and ingenious, possessed of considerable intellectual capacity; but they are yet, as a race, fading away before the enterprise of European civilization.

In regard to the health of the different races, we find a vast difference in different parts of the world. In the same race also, varying according to a multitude of circumstances, the health of nations is found to differ in almost indefinite degree, according to the dietetic and other voluntary habits of the people.

It is a sad reflection upon civilization to assert, that the more cultivated and refined man has become thus far in the world, the more sickly and diseased he is found to be. This fact shows most conclusively that there is error somewhere. We can not for a moment suppose that the Creator designed that *any* of the powers of the human constitution should suffer from use. On the contrary, it is man's privilege to improve not only his moral and intellectual powers, but his bodily also.

A few facts with reference to the physiological capabilities of the human constitution, and its power of resisting the ordinary causes of disease, will prove interesting in this connection.

It is remarkable that there were no cases of DEFORMITY to be found among the Indians at the time the whites came to this country. But "since the intercourse of the white people with the Indians," says Dr. Rush, "we find some of them deformed in their limbs. This deformity," continues our author, "on inquiry appears to be produced by those quarrels, accidents, etc., which have been introduced among them by spirituous liquors."

The Indians were sometimes attacked by **FEVERS**, such as are well known to arise from the inhalation of malarious atmosphere, and which are to be accounted for by the circumstance that the Indians live and travel much along rivers and wet places, where miasmatic emanations for the most part are found. But that the Indians were never troubled with gout and rheumatism may seem remarkable, since they are naturally so much exposed to wet and cold. **GOUT** and **RHEUMATISM** were wholly unknown to the "red men" before rum was introduced among them.\*

The Indians were altogether free from those terrible diseases, the **VENEREAL**, **SMALL-POX**, **ELEPHANTIASIS**, and **SCURVY**. The two former were imported among them by the whites; but I am not aware that they are afflicted with either of the latter, even to the present day.

It is an instructive fact, that the aborigines of our country were never afflicted with any of the forms of **INSANITY** or **MENTAL DERANGEMENT** at the time of the whites coming them; nor do we hear of insane Indians even at the present day.

The children of the Indians were never known to be troubled with **WORMS**; so that, we have reason to believe, that if a hardy course of training and diet were pursued with civilized offspring, such would uniformly be the result in their case as well. Worms are an evidence of debility. They can not generate in the living body if it is preserved in a truly healthful and vigorous state; nor have we any accounts of Indian children ever being troubled with any form of disorder arising from the process of **TEETHING**.

The art of midwifery, and the power of enduring childbirth, as we see among the aborigines of our own country, and in some other parts of the world, afford a striking contrast with what we observe among the more civilized portions of the race. Some facts bearing on this subject I have given in another volume.†

The state of society among the Indians necessarily excludes the influence of many of those passions which are known to cause bodily derangement. If an Indian becomes angry, the turbulent effects of

\* **GOUT** and **RHEUMATISM** are seldom heard of in Russia, Denmark, and Poland. Cold, combined with wet, is generally regarded the great cause of the latter disease. Whatever explanation may be given in regard to these facts, it is to be remembered that the mass of the inhabitants of these cold countries are poor, and obliged to live on scanty fare, as also to work hard. Consumption, likewise, so far as we can learn, is seldom met with among the poor of these countries.

† Midwifery, and the Diseases of Women; a Descriptive and Practical Work, showing the superiority of Water Treatment in Menstruation and its Disorders; Chlorosis, Leucorrhœa, Prolapsus Uteri, Hysteria, Spinal Diseases, and other Weaknesses of Females; in Pregnancy and its diseases, Abortion, Uterine Hemorrhage, and the general Management of Childbirth, Nursing, &c.

his passion are hushed in deep and lasting resentment. Envy and ambition also are, for the most part, excluded by the equality of savage life. "The weakness of love," says Dr. Adam Smith, "which is so much indulged in ages of humanity and politeness, is regarded among savages as the most unpardonable effeminacy. A young man would consider himself disgraced forever if he showed the least preference of one woman above another, or did not express the most complete indifference, both about the time when, and the person to whom he was to be married." Thus the savage state, although being in many respects far from a truly natural one, exempts the individuals of both sexes from those violent and lasting diseases which are well known to arise from excesses in matters pertaining to the sexual and marital relations.

It is to be observed, also, that marriages do not, as a general fact take place among the aborigines before the period at which the body has attained its full vigor. The men seldom marry before thirty, and the women before twenty years of age. Abortion, one of the most frequent mishaps with women of civilized life, is almost entirely unknown among the Indians. They nurse their children for two years, and often longer, and during this whole period they utterly refuse the embraces of the opposite sex. The manual labor to which they are constantly subjected, and their hardy habits generally, tend powerfully to invigorate their bodies, and although they are, during pregnancy, exempted from the more laborious parts of duty, they are always habitually active. Nature is their only midwife; and, according to Dr. Rush, "each woman is delivered in a private cabin, without so much as one of her own sex to attend her. After washing herself in cold water, she returns soon to the usual employments of her station;" so that, according to the authority just quoted, "she knows nothing of those accidents which proceed from the carelessness or ill-management of midwives, or those weaknesses which arise from a month's confinement in a warm room."

It is indeed said, on good authority, that if, during journeys, the Indian woman is taken in labor, she merely falls back for a little on her way in the forest, delivers herself, and then shortly makes up to her companions with her new-born child on her back.

The most natural state of the female constitution, and one which is connected with the best and firmest health, is that of pregnancy and nursing; and it is a remarkable fact, that there is seldom a period during the interval between marriage and the cessation of the menstrual function in which the Indian women are not either pregnant or giving suck.

Among other nations than the aborigines of our own country, we find also striking examples of the freedom from suffering with which childbirth is endured. Thus, according to Stephenson's "Twenty Years' Residence in South America," "among the Araucanian Indians of South America, a mother, immediately on her delivery, takes her child, and going down to the nearest stream of water, washes herself and it, and returns to the usual labors of her station."

The women of Otaheite, according to "A Description of Pitcairn's Island and its Inhabitants," have all learned the art of midwifery. Childbirth generally takes place in the night-time, labor lasting seldom more than five hours. It is always safe, and no cases of twins occur. Miscarriages, too, are unknown among them, except from accident. Infants are generally bathed in cold water (which in that latitude must be only moderately cool) three times a day, and are sometimes not weaned for three or four years; and when they are taken from the breast they are fed upon ripe plantains and boiled taro-root rubbed into a paste. Nothing is more extraordinary in the history of the island than the uniform good health of the children; the teething is easily got over; they have no bowel complaints, and are exempt from those contagious diseases which affect children in more civilized countries. Neither the young nor the old are ever vaccinated. "The natives of Otaheite," says Captain Cook, "both men and women, constantly wash their whole bodies in running water three times every day: once as soon as they rise in the morning, once at noon, and again before they sleep at night, whether the sea or river be near them or at a distance. They wash not only the mouth, but the hands, at their meals, almost between every morsel; and their clothes, as well as their persons, are kept without spot or stain." "The women," according to a missionary writing of this people in 1797, "have black and sparkling eyes, teeth white and even, skin thin, soft, and delicate, limbs finely turned; their faces are never darkened with a scowl, or covered with a cloud of sullenness or suspicion; their manners are affable and engaging; they step easy, firm, and graceful, their behavior free and unguarded; always boundless in generosity to each other and to strangers; their tempers mild, gentle, and unaffected; slow to take offense, easily pacified, and seldom retaining resentment or revenge, whatever provocation they may have received. Their arms and hands are very delicately formed, and though they go barefooted, their feet are not coarse and spreading. In private life they are affectionate, tender, and obedient to their husbands, and uncommonly fond of their children; they nurse them with the utmost care, and are particularly attentive to keep their infants'

limbs supple and straight; a cripple is hardly ever seen among them in early life; a sickly child is never known; any thing resembling it would reflect the highest disgrace on the mother."

A very worthy medical friend who spent some time at New Zealand in 1839, gave the writer lately the following particulars concerning midwifery, as practiced among the inhabitants of that island.

Women (who generally followed out-door active employments a considerable portion of the day), as soon as they experience the first symptoms of labor, retire some little distance from the settlements, among the *fern* (a native growth resembling bushes in the United States), by the side of a stream of pure water. Within about one hour not unfrequently the mother returns with her new-born infant, both herself and it having been previously washed in the pure stream. The child is never bound with clothes or swathed, but for a few days at first it is dressed in one light flaxen garment. This is placed loosely about the trunk of the body, the extremities being left wholly free and exposed to the action of air and light, and, after a few days, they are left entirely naked, being allowed freely to roll about and exercise their limbs upon a mat of smooth texture. It is left much of the time in the open air, but not exposed to the sun's rays. At other times, when the mothers are at work, planting or hoeing in the ground, they are allowed, even when not more than one week old, to roll among the potatoes and corn. They are often taken to the streams of pure water with which the island abounds, for the purpose of being bathed. The mothers, in consequence of their almost constant labor and exercise in the open air, and their simple habits generally, are remarkably strong and muscular, and free from deformity and disease. Their food, particularly of the inland parts (where the finest specimens of physical development are to be found), consists almost wholly of the vegetable productions of the earth, such as corn, pumpkins, potatoes, common and sweet, peaches, and various other fruits, all of which articles grow to great perfection on the island. The New Zealanders wear but a single garment of flax, sometimes thrown loosely over the shoulders, and sometimes only about the loins. They have a great dislike to head-dresses, and never wear them.

In civilized countries, also, we find, among the laboring classes, some remarkable examples of the general safety with which child-birth is endured; and it has often been remarked among the legal profession, that in cases of concealment and child-murder, a most wonderful degree of strength and capability of exertion is often exhibited. There is, it is true, in cases of this kind, a powerful stimulant for extra exertion; but even admitting this consideration in its full force,



these examples afford a striking proof of what the human constitution is able to endure, even under many untoward circumstances.

Mr. Alison mentions the case of one Catharine Butler, or Anderson, of Aberdeen, Scotland, who, in the spring of 1829, walked in two or three days after delivery, in a single day, with her child on her back, from Inverary to Huntly, a distance of twenty-eight miles; and the same author also remarks, "that it is not unusual to find women engaged in reaping, retire to a little distance, effect their delivery by themselves, return to their fellow-laborers, and go on with their work during the remainder of the day, without any change of appearance but looking a little paler and thinner. Such a fact," Mr. Alison observes, "occurred in the case of Jean Smith, of Ayr, in the spring of 1824."

Among the peasant women of the mountains in Austrian Silesia, childbirth is regarded in a very different light from that among the women of our own country. They are exceedingly hardy and robust, and seem to care as little about giving birth to a child as if it were an every-day occurrence. Physicians are very rarely employed on such occasions in that country, as I learned when there by frequent inquiries. In the winter of 1848, when I was last at Graefenberg, the wife of the proprietor of the *Hotel de Graefenberg*, a very good and worthy woman, of the middling class, gave birth to her first child, without the aid of any one save her husband and a female attendant; and, although the labor was a severe and protracted one, lasting a day and a half, she preferred to have no physician, although one of skill and experience lived next door to them, and who was, moreover, a particular friend of the parties. These German peasants appear to regard labor as it should be—a *natural process*, and the degree of patience for which the German character is noted, is nowhere more strikingly exemplified than in the matter of childbirth.

A volume might be filled with facts of the most interesting kind, showing the capabilities of the human constitution in resisting disease. It is a sad commentary on civilization to witness the health and the greater power of endurance that exists among many of the savage nations; and when we consider that even they violate many of the physiological laws, we are led to reflect upon what might, and what will yet be, in that age when enlightened man shall learn how to live in obedience to the Creator's laws. As certainly as the world stands, such a time will yet come, distant although it may be.

## OF OCCUPATION.

It is acknowledged on all hands that the mode of life a man follows exerts an important influence on his bodily health. While some of the occupations tend in a powerful manner to build up the system, and to maintain, for a long course of years, firm and enduring health, others are in their very nature unhealthful. Every calling has certain advantages and disadvantages connected with it peculiar to itself. I therefore submit a few remarks on the occupations that engage the race.

*The Farmer.*—Agriculture and horticulture would seem to constitute the most healthful employment. The farmer is exposed abundantly to pure air, that is, the purest in the locality where he may happen to live. He is not under the necessity of exposing himself often to storms and rain. The regularity of his calling adds to his chances of health; neither is his brain worried or overtaxed, as a general thing, and his labor in the open air is sure of giving him a good appetite, digestion, and capacity for sleep.\* He needs no fashionable expedients for killing time. But notwithstanding all these advantages of the agricultural life, farmers generally subject themselves to several serious drawbacks. Their houses, and in particular their sleeping-rooms, are not usually as capacious as they should be. Especially at night do farmers suffer for want of pure fresh air. The small bedrooms in which they "stow themselves away," are altogether unfit for the purpose of breathing and sleeping. It is no wonder that they are so often troubled with nightmare and disturbed sleep. If farmers would sleep in air as pure as that in which Methuselah did, to wit, out of doors, their repose would be as sound as that of the most healthy child. Besides, farmers treat themselves badly often in the way of diet. They eat not only too much in quantity, but of the grosse forms of aliment; and tea, coffee, and tobacco—I am ashamed for our country to own it—generally come in for a full share. The water they use is generally hard, and altogether unfit for the purposes of health. In winter time, also, they suffer a vast deal from their overheated and unventilated rooms, especially since stoves have come into use.

So healthful an employment do I consider tilling the soil to be, I would recommend that every one who can possibly do it, should culti-

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\* Dr. Edward Johnson tells us that farmers and out-door laborers in England do not one time in a hundred suffer from dyspepsia; and he infers that this is because they have no undue worriment of the brain. But this is evidently a mistake. In this country, where food is cheaper and more abundant, tea and coffee included, and tobacco as common as bread, dyspepsia is an every-day disease.

vate a piece of ground, even if but a small one. It is not only pleasing to the mind to witness the growth of crops coming from one's own exertion, but it conduces to health in every respect.

*Millers, Paper-makers, Machinists*, and all whose occupation exposes them to an atmosphere loaded with dust, are liable to irritation and inflammation of the respiratory organs, and consequently to asthma and consumption. Those who are obliged to follow a calling of this kind should go into the open air as often as possible, and pay particular regard to the air of their sleeping and other apartments. Bathing, and frequent frictions upon the skin to keep it in an active respiratory state, will also be of service.

*Potters* are liable to injury from dust, but more especially from the chemical gases to which they are subjected. Lead-colic and paralysis arises among those of this calling from the fumes of lead to which they are often exposed.

*House-painters* suffer not only from the action of lead to which they are subjected, but from inhaling constantly the fumes of spirits of turpentine. They are generally a pale and sickly-looking class, often dyspeptic, and not unfrequently have lead-colic, inflammation of the bowels, paralysis, rheumatism, and nervous complaints. We seldom see one who has followed this occupation regularly much advanced in years. If health is to be measured by money, a house-painter should have at least double the wages of ordinary laborers.

*Factory Operatives* are compelled to breathe an atmosphere that is always more or less impure from the dust necessarily connected with factory operations, rancid oil, and in winter from a temperature too high. Too many hours, also, are enforced as a day's work in factories generally. But the *regularity* of the factory system—the early rising, the punctuality at meals, and the plain fare—these are the advantages of factory life.

*Masons and Plasterers* are liable to injury from the dust and stony particles to which they are exposed, and the caustic quality of lime.

*Workers in Metals* are exposed to dust, such as iron filings, etc., which is always more or less deleterious to the air passages, and in some cases also to chemical gases used in refining metals. These are harmful, in many cases, in consequence of their poisonous properties. All workers in metals of a poisonous character should keep the hands and other parts of the person as cleanly and free from them as may be. Experiment proves that these poisons act by *absorption at the skin* as well as in the lungs; and some hold that there is a greater liability to harm in the former than the latter way.

*Printers* are liable to harm from the too confining nature of their

calling, and sometimes suffer from lead symptoms, the metal being received into the system from the types used. They ought never to hold the types in the mouth, and the office should be as well ventilated and lighted as possible.

*Practical Chemists* are very liable to become sickly from the fumes of various poisonous and deleterious articles which they can not wholly avoid. Much depends upon the arrangement of the laboratory as to ventilation; but I think it will be found that nearly all of those who engage themselves constantly in chemical operations are pale and sickly, and liable often to be stricken down with serious disease.

*Miners and Colliers* are injured by want of light, dampness, foul air, and the particles of dust to which they are exposed. *Miners in mercury* are, of all laborers, most to be pitied. Fallopius has asserted that those who work in mines of mercury seldom live above three or four years. Pulmonary consumption, general wasting, and the worst possible forms of nervousness, a host of ailments, surely, and of the most dreadful and destructive kind, are caused by inhalation and imbibition of this poisonous metal.\*

*Soap Makers, Tallow Chandlers, Boilers of Oil*, as well as all who work among putrid animal substances, are apt to be troubled with nausea, vomiting, and indigestion, if not to more serious ills. Ventilation and personal cleanliness may, in such callings, be brought in as material helps. But loathsome as putrid animal matters are, their ill effects, when breathed, are small in comparison to those arising from mineral poisons.

*Scavengers and Street Sweepers* must suffer more or less always from breathing dust and various filthy and pestilential emanations unavoidable in their calling. In breaking holes into old privies, scavengers are sometimes struck down as if dead, by the sulphureted hydrogen gas which escapes from the opening. Hence caution is required in this disgusting but necessary avocation.

*Grooms and Hostlers* are liable to some harm from the dust arising from cleaning animals, carriages, etc., but the ammoniacal gases coming from the manures they are compelled to breathe are not found to possess any peculiarly noxious properties. Those who follow this calling seem generally to enjoy a good degree of health.

*Fishermen, Ditchers, Bath Assistants*, and such as have their extrem-

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\* It is said that in some parts of Spain convicts are doomed to work in mines of mercury, as a palliation of their offense. If long-protracted bodily and mental suffering are the proper rewards of criminal doings, exposing the convict to the slow but sure and deadly action of mercury in this way, is one of the most effectual punishments that could possibly be devised.

ities exposed much to cold and wet, are very liable, particularly when they commence this kind of life, to have boils and felons on the parts upon which the water most acts. Some who are already in disease, or strongly predisposed thereto, are harmed by such occupations; but others, on the contrary, are benefited by them. Those who are obliged to follow callings of this kind, should always see to drying themselves as soon as possible after their work is over.

*Soldiers* have some advantages over ordinary persons, for they are compelled to observe regularity in many respects. But in times of peace they are apt to become dyspeptic for the want of something to do. Altogether the soldier's life is not a desirable one, so far as health is concerned. All authorities agree that the life of the soldier, even in times of peace, is unfriendly to longevity.

*Sailors* are not proverbially a healthy, although a hardy race. They undergo much that tends to give them muscular vigor, and at the same much that is against them. Their hours for sleeping are necessarily very irregular. But, worst of all, are their habits of intemperance and licentiousness when on land. Jack ought to be a healthy man, but too often he is far, very far from it.

*Tailors* are a very unhealthy class. They suffer from dyspepsia and constipation, if from no worse ailments, as certainly as the trade is followed steadily for a few months. If a tailor would rise sufficiently early, go to rest early, and observe good general habits throughout, he might do, day by day, a fair amount of work. But tailors do not, in general, manage in this way. Perhaps the pay they receive is not sufficient to give them time for the required relaxation and rest. We seldom if ever see an old tailor.

*Seamstresses* are in a still worse condition. Their pay is often unreasonably small, and fashion does not allow them to go out for exercise any thing like as much as nature requires. Reformers have here a great field for work.

*Clerks, Accountants, and Copyists* are liable to suffer from the too sedentary nature of their occupation, from bad air, and want of light. One who is obliged to write a good deal should sit and stand alternately; this will be found much better than to adopt either position constantly. But if one position only can be chosen, it should be the standing, rather than the sedentary.

*Storekeepers, Shopkeepers, and the like*, have the same difficulties to contend with as clerks and accountants, only they are not confined so much in one position, and their brain work is also much less.

*Porters and Runners*, who are obliged to lift and carry very heavy burdens, are forced to inhale air with undue violence, by which the

delicate air cells of the lungs become overstretched and sometimes ruptured, the effect of which must be a hemorrhage, greater or lesser. Other viscera, also, are liable to injury in the same way, and the health of many a one has been forever destroyed by a single strain. Hippocrates mentions the case of a man who, upon a wager, carried an ass, upon which he was immediately seized with fever, vomiting of blood, and rupture.

*Blacksmiths* are sometimes injured by being obliged to put forth too great an effort of strength. The dust to which they are subjected is also a source of harm. The intense light of the blacksmith's fire and heated irons is certain of causing injury to the eyes in the end.

*Carpenters* and *Joiners* may be said, for the most part, to have a healthy occupation. True, their work is sometimes too hard, and they are, at times, obliged to breathe a good deal of dust. None but those of the strongest powers should be put at the harder parts of blacksmithing and carpentering.

*Convicts*, as kept in our State prisons in the North, and in the South of our country, for aught I know, are generally remarkably free from the outbreaks of disease. Not a few, if I am rightly informed, are cured of dyspepsia and other chronic ailments, by the discipline and regimen to which they are subjected; and this notwithstanding the moral and mental drawbacks that necessarily attend their situation. They are made to go to rest early, rise early, work at regular hours, and eat plain, but sufficient food. We hear of epidemics, such as cholera and dysentery, prevailing in the locality of a prison, but the convict is almost certain to escape. Now all this speaks volumes in favor of temperance, simplicity, regularity, and regular employment.

*Idlers* generally have very poor health. Of all hygienic misfortunes, that of having no employment is the worst. A poor man is to be pitied, but an idler much more. The most inveterate cases of hypochondriasis among men, the most intractable cases of hysteria among women, and the worst forms of dyspepsia among both sexes, are to be found among those who have no regular employment. Men make fortunes and retire from business, expecting thereby to get great enjoyment. But they find themselves mistaken. They tell us they were better off, in every respect, when actively employed. Man was made to gain his bread by the sweat of his brow; that is, to be active, mentally and bodily. Said Richter, "I have fire-proof, perennial enjoyments called employments." Every one who desires health should keep himself regularly engaged at something which will call forth and exercise both his mental and corporeal powers. If he must go to either extreme, it is better it should be that of doing too much.

## OF SYMPTOMATOLOGY.

*The Pulse.*—This is an important and useful guide in disease. It not only shows to a great extent the real nature of a given case, but is one of the most serviceable of all signs in enabling us to detect danger, and the extent of the disease.

The pulsation of the arterics is synchronous over the whole system. It matters, therefore, little at what point we ascertain the arterial beat, provided it is a convenient one. Usually we examine the pulse at the wrist; but when a patient is lying in a wet sheet, or when he is sleeping or should not be disturbed in bed, we may examine the artery at the temples—the temporal artery as it is called. If we examine at the wrist, and wish to be very accurate, it is better to try at both arms, because the artery sometimes lies much deeper in one than the other.

In ascertaining the pulse, the *age* of the patient must always be taken into the account. In the embryo, the pulse is about 150 per minute; the first year, from 140 to 110; the second year, from 110 to 90; the third year, from 100 to 80; the seventh year, from 80 to 90; at puberty, from 75 to 85; at adult age, from 70 to 80; in old age, from 60 to 70, and perhaps somewhat above this number.

*Sex* also varies the pulse. It has been said that in females it is on an average ten beats in a minute quicker than in the male. But this estimate is, I am confident, somewhat too high. Dr. Pennock, of Philadelphia, found the average pulse in 170 men of the mean age of 64.09 years to be 71.83 beats per minute. In 203 women of the mean age of 70.57 years, it was 78.02 beats.

In no one respect, probably, do persons differ more than in the frequency of the pulse. In some cases, though rarely, it is above 100, the individual being at the same time well. In other cases it may be as low as 40 or 50 per minute. Dr. Rush examined a company of eight healthy Indian men, and in none did the pulse exceed 64 beats per minute.

The *temperament* is also to be regarded in ascertaining the pulse. In the bilious and phlegmatic the circulation is usually slower than in the sanguine and nervous.

Parents, especially, should make themselves acquainted with methods of ascertaining the pulse. Certainly if they love their children, it is not asking too much of them to know what the pulse of each is or should be in health. Then when the child becomes ill, they have one of the best of guides as to the violence of the disease and the danger they may be in. I know it may be said that few families in the country have a watch with a second-hand, such as is ordinarily used in

counting the pulse. But this is not necessary, for by a piece of lead, or other heavy article, with a string or cord thirty-nine and two tenths inches long attached, and swinging it, we get seconds; it matters not whether this *pendulum* swings far or only a little way, it always swings by seconds. One person can count sixty seconds while another counts the pulse. In this simple way all needful accuracy is readily secured.

It should be remembered that because mental excitement is sufficient to vary the pulse considerably, we may commit a great error in visiting a patient by counting it too soon after an entrance into the sick room. Before proceeding to ascertain the pulse, the patient should be conversed with in such a manner as to calm any undue mental excitement; and if the case is a serious one, we should count the pulsations at two or three different times before leaving. Even when all these precautions are observed, we must make some allowance in case the subject is a nervous person. The pulse may, under such circumstances, become very frequent from excitement, while at the same time there is no alarming disease present.

The pulse, in health, is usually somewhat fuller and more frequent in the morning than in the after part of the day. Exercise, whether bodily or mental, always increases it more or less. During sleep the pulse is less than when we are awake, if the bed-clothing does not cause too much accumulation of heat in the system. It is quicker and fuller after a meal than before it, and the more full the meal the greater the elevation. Animal food augments it more than farinacea and fruits. Eating when too much fatigued, raises the pulse more than ordinary meals. It should also be remembered that the pulse beats considerably quicker in the standing than in the recumbent posture, and intermediately in the sitting.

Many distinctions have been made in the books in regard to the character and frequency of the pulse, not a few of which are altogether more "nice than wise." Some of these distinctions, too, exist more in the imagination than in reality, which is proved by the fact that what one man would call one sort of pulse, another would call by an altogether different name. A few leading distinctions, then, in regard to the pulse are all that it is necessary to dwell upon in a work like the present one. But, in the first place, I remark that it would always be of advantage to the physician if he could know what the patient's pulse is in health. If parents and adults generally attend to this matter as they should, that is, if they are able to tell the physician when they call him to a case the frequency and general characters of the pulse in health, it would be of important service to him in treating the disease.



In inflammatory diseases, generally, there is a tendency to *increased frequency* of the pulse. But in diseases of depression the pulse may be either more or less frequent than natural. Great debility is often connected with a very frequent pulse.

*Volume of pulse* is also subject to a good deal of variation in different states of disease. Increased fullness of pulse is generally owing to a too plethoric or a febrile state of the system. It may be connected with either strength or debility: if with the former, the artery beats harder than usual upon the finger; if with the latter, it is much more compressible.

The words "tense," "wiry," "corded," and various other terms that are sometimes used in designating arterial action, are expressive of their own meaning. What is called a *tremulous* pulse denotes great debility and extreme excitability of the nervous system. Calomel and other powerful medicines, as well as bleeding, has often caused this kind of pulse. Inebriates are very subject to it; and the users of tobacco and strong tea and coffee are also frequently thus affected.

In some cases the arterial pulsations are *intermittent*, that is, one or more beats are every now and then omitted. The pulse is often intermittent in diseases of the heart; but it is not to be inferred that the heart is necessarily organically diseased when the pulse is irregular in this way. Some persons have lived to be very old, having for many years had this kind of pulse. In such cases we are to suppose that the difficulty has been merely sympathetic. One thing is to be particularly noticed: the heart almost always intermits in its action in severe rheumatism of the acute form. I have never seen the fact stated in books, but I do not now recollect an exception to the rule. The intermissions are very marked and frequent in some cases. The heart has great sympathy—so to say—with rheumatism, and is very apt to become affected in this way. This accounts for the irregularity of its action in the rheumatic disease.

No remedy in nature can at all compare with water in its power and safety in regulating the circulation. Often, when called to a sick patient—a child, for example—we feel the pulse to be 120, 130, 150, or more, caused by the fever or inflammation present. We give the child a tepid bath, for example, or a wet pack, or a cold bath, according to the case, and in a few minutes the pulse is brought down 10, 20, or 30 or more beats in the minute. True, if the disease is severe it will rise again; but we have only to repeat the remedy, and we obtain the same good result. Now who does not see how much better and safer a method this is than to bleed the patient, or to take the still slower process of physicking? In the former case we *reduce the*

*pulse, retain the blood, and promote the strength.* In the latter we may reduce the pulse, or we may not, but we positively reduce the strength.

*The Animal Heat.*—The subject of ascertaining the animal temperature accurately by the thermometer has been altogether too much neglected in the medical art. It is singular that such is the fact when it is so easy a matter, with a proper thermometer, to do it. With a suitable instrument, the bulb being placed under the tongue, the mouth being closed for a few minutes, there is no trouble at all in the process. In high fevers, especially, this test would be a useful one, not only in enabling the physician to direct the proper treatment, but in serving as a diagnostic sign. Not only every physician, but every family should provide themselves with a suitable instrument for ascertaining the animal heat.

*Of Appetite for Food.*—In the severer forms of acute disease it is impossible for the digestive organs to perform their office naturally; hence there is loss of appetite in such cases. This is a benevolent provision of nature, for taking food under such circumstances would be liable to be attended with much harm. A loss of appetite does not necessarily indicate disease of the stomach, for it oftener happens without such disease than with it.

As a rule, the appetite should not be *coaxed*; nature knows her own work best, and in general she calls for food as soon as it is needed. But if the stomach has been drugged, the case may be different—*then* the system may need nourishment when there is no appetite for it.

*A keen relish for food* is a good omen usually. The appetite, like all the other bodily senses, may become depraved. In fevers, and the severer forms of disease generally, the return of appetite is always to be hailed as a favorable indication; but it should, of course, be gratified with due caution, according to the nature of the case.

*Of Thirst.*—A desire for an unusual quantity of drink is common in all fevers and inflammatory diseases. Thirst in disease may arise from two causes: increased heat and a too thick or viscid state of the fluids. It therefore follows that in both high and low fever, an urgent thirst is often experienced. In the former, *cold* liquids are required; in the latter, cold is useful, but not so serviceable as *warm*. Thus in cholera, and in severe losses of blood, as also in a low state of fever, warm water—not hot, I beg the reader to recollect—is preferable to cold, because it affords more speedy and efficient *dilution* to the blood. With this precaution, it would hardly be possible to do harm in giving drink to the sick.

*The Tongue.*—It was a singular feature of Preissnitz's practice, that he seldom felt of the pulse or looked at the tongue. We know, however, that we may, in many instances, learn much respecting the state of the system from the appearance of this part.

If the tongue is *cold*, without any assignable cause, we are to infer that there is great prostration of the vital powers. Before the tongue can become cold, the breath itself must be in the same condition, which denotes that the animal caloricity is failing at the very fountain of life. This we often see in the collapse of cholera. If the tongue is hotter than natural, the part itself not being inflamed, there is general fever present.

*Furred Tongue* is almost constant in acute disease; not only the quantity of the coating, but the color serves as a diagnostic mark. In some cases the salivary glands secrete a viscid matter, which readily adheres to this member. This is easily removed, and should not be confounded with the true coating. The real *fur* can hardly be removed without scraping off the surface of the tongue with it.

*White Fur*, especially if thick and evenly spread over the part, indicates an active state of disease, but which runs its course more quickly, and is more easily cured than if the coating is darker.

*Yellowish Fur* denotes a bilious state of the system. It may come from the vomiting of bilious matters, or it may be secreted directly from the blood upon the part. It denotes either a torpid state of the liver, or an excessive production of bilious matter in the blood.

*Brown or Black Fur*, when not caused by chewing dark-colored substances, such as tobacco, liquorice, and the like, is indicative of a worse state of things than either of the other forms of coating mentioned. This kind of fur is that which belongs to fevers of a low and dangerous type.

In chronic disease, fur upon the tongue is also to be looked upon as a diagnostic aid. In perfect health the tongue is always clean, although some who have an opposite state of the organ, think themselves to be well. They may, indeed, keep about, and not suffer from any violent attack of disease. But a furred state of this member should always be looked upon as denoting a wrong state of the fluids of the system.

*Paleness of the Tongue* denotes a deficiency of blood in the system generally. *Undue redness* of the parts indicates an inflamed state of the mucus membrane of the digestive organs.

*Dryness of the Tongue*, when not caused by breathing through the mouth, only indicates febrile action in the system. A *moist* state of the tongue is always more favorable than the *dry*.

*Bulk of the Tongue* has also something to do with sickness. If it is

found enlarged, we are to suspect local disease of the part itself. If its enlargement is so much as to cause indentations upon its sides, owing to the position of the teeth, *salivation* is to be feared. A *contracted* state of the tongue shows either a deficiency of blood in the system, or a feeble state of the circulation.

It is here to be remarked that one of the most remarkable features of water-treatment is its power over the symptoms that have just been described. Often, in a fever or inflammation, two or three hours of treatment is sufficient almost wholly to clear off a thick coating of the tongue. This happens in consequence of the great power water exerts in removing febrile symptoms, and in purifying the juices. It will be found in all cases that water exerts a much more friendly influence upon the appearance of the tongue than any or all other medicinal substances can do.

*Loss or Depravation of the Gustatory Sense* should excite no immediate alarm, unless it is owing to a paralyzed state of the tongue. Ordinarily it simply denotes a derangement of the bodily functions, which appropriate treatment will, in a suitable time, throw off.

*The Urine.*—This evacuation is subject to important variations in disease. *High color of the urine* denotes febrile action and impurity in the system. *Scantiness of quantity* is also one of the symptoms of general feverishness. Excessive quantity of the urinary discharge is considered under the head of "Diabetes."

*The Fecal Discharges.*—It is not sufficient to know that the bowels act regularly. The evacuations may be too scanty to serve the purposes of healthful defecation. There may be even a sort of diarrhea, while at the same time hardened feces accumulate in the bowels, producing irritation and general disturbance, which may lead to a state of dangerous inflammation. All of these things, therefore, should be attended to in a case of sickness; and however disagreeable it may be, it is the physician's duty to examine the discharges himself in all cases of active or dangerous disease. The color, quantity, frequency, and nature of the dejections are to be taken into the account.

*The Menses.*—It should excite no immediate alarm if the monthly discharge should become obstructed, or happen sooner than it is due. True, all irregularities should be attended to in season—and the sooner the better, as a general fact. If the discharge comes on at the time of a severe disease, it denotes a favorable state of things in the system. When nature is thus able to perform her proper task, we may be sure that things promise to go on well.

## PAIN, PHYSIOLOGICALLY AND PATHOLOGICALLY CONSIDERED.

The susceptibility to pain was benevolently instituted in our bodies by the Creator. If it were not for this susceptibility, human beings would continually injure themselves in a great variety of ways. Children would amuse themselves by cutting off their extremities for mere sport, and older persons would open their bodies to enable them to see the mysteries that are going on within it. There would be no bounds to our running into danger in these ways. If it were not for the sensation of pain, the race would, in a very short period, become extinct.

We are not, however, to look upon all painful sensations as the direct work of the Almighty hand. Thus, a scrofulous child, born of diseased parents, may live a brief life, and which is composed almost wholly of manifestations of pain. In this case, certainly, we can not regard the child's sufferings as coming from the direct decree of the Creator, but as a result of the violation of the natural laws on the part of those who have gone before it. The great Architect, in establishing the constitution, nature, and laws of the living body, was himself compelled, so to speak, to observe certain rules; that is, in order to make a body, such as would be best calculated in all respects for the happiness and well-being of the creature, it must have a susceptibility to disease and pain, and which could be transmitted from one to another, without any reference to the voluntary habits of the latter. Besides, also, a person may suffer pain as a remote effect of some violation of law, which we are to regard not as a direct or vindictive visitation of the Almighty. Thus the pain which a man experiences for months or years after he has received a railroad accident, can not be in consequence of a special decree of the Author of nature. It is only a consequence of a previous violation of a natural law.

The assertion, then, *that pain is a benevolent intention of the Creator*, is to be understood in a broad and general sense.

Pain is, in many respects, a useful index in disease. It enables us not only to ascertain the true nature of a malady, but also to point out the best and most effectual means of curing it.

In medical nomenclature, pains are said to be of various degrees and kinds. A pain may be *slight*, or it may be *agonizing*, with all the intervening grades of *moderate*, *severe*, *violent*, *intense*, *excruciating*, etc. Various figurative expressions are also used to designate the several varieties of pain, such as *pungent*, *stinging*, *cutting*, *lancinating*, *tearing*, *rending*, *splitting*, *boring*, *gnawing*, etc. Pains are also said to be *heavy*, *dull* or *obtuse*, *sharp* or *acute*, *aching*, *throbbing*, *smarting*, *prick-*

*ing, pulsating, burning, etc.* The terms *tickling, itching, and prickling* come under the general head of painful sensations. The same also may be said of the terms *nervousness, restlessness, uneasiness, inquietude, anxiety, oppression, etc.* Pains are said to be *fugitive, flying, or wandering* when they change frequently from one part to another, and *fixed or settled* when such is not the case. *Neuralgic* pain is that which attacks the larger nerves and nervous branches. *Spasmodic* pain is such as attends a spasmodic condition of any part of the system.

Pain is often the result of inflammation, but not always so. There may be pain with inflammation, and pain without it, and there may also be inflammation without pain, although this is not common, especially if the inflammation be of an acute character.

One peculiarity of pain is, that it is not always located at the seat of the disease. A patient may have a pain which appears to be in the liver, the stomach, or between the ribs, but which is owing wholly to a diseased condition of the spinal column. In dysmanorrhœa, the pain is often wholly in the back, whereas the womb only is affected. The same also may be said of after-pains. The pain arising from an inflammation of the hip-joint is felt most in the knee, which part is, in such cases, usually perfectly sound. Various other examples of this kind might be given, but these are sufficient.

Pains that do not arise from local or mechanical injury are generally connected with a state of greater or less debility; yet pain is on the whole a good omen in disease. In neuralgia, or the pain of a large nerve, the patient is usually a good deal debilitated. Severe pain, in such a case, can hardly be said to be a good symptom; but in all common affections it is different—the more pain the more vitality the patient has, as a general thing. Thus, for example, two persons have rheumatism in as nearly as may be the same way: the one who has the most vitality, and who can be the soonest and most easily cured, has for the time the most pain.

In practice we can not always trust to what patients tell us in regard to the amount of pain they experience. One will tell us that he has severe pain “all over him,” which is not at all a supposable case. Another will tell us that he has the “most excruciating” pain, when we know from his pulse, his appearance, and symptoms generally, that such is not the fact. One may call a pain “very severe,” which another would denominate as only a moderate pain. In treating a case, all of these things are to be taken into consideration.

In regard to the means of relieving pain, I have here a few words to offer. Every one who has suffered sensations of this kind, espe

cially if severe, can understand how important a matter it is to know the best means of removing pain, provided it can be done without harming the system. True, it was benevolently ordained by the Great Architect of our bodies, that after the agony of pain has passed we soon forget it. Still we can remember enough of the sufferings we have undergone, to lead us to be anxious in reference to the means of obtaining relief under such circumstances.

That the Creator designed a great variety of articles which can be made to serve as means of deadening pain, I have no doubt. But He has not taught directly in what way or ways to use such substances. It is by the exercise of intellect, then, that man is to aim at this desirable knowledge.

It is an ever-important consideration in the treatment of pain that we do no violence to the living economy, and so in the end make matters worse. Thus, who does not know that if a man persists in the use of opium, for example, to relieve an habitual toothache, he renders himself more feeble and nervous, so that he suffers more than he would have done if he had not resorted to the remedy. Besides, he is always liable to make the identical pain itself worse in the end. Opium, then, as well as all narcotics, always tends to debility, and debility is very apt to be attended with sensations of pain.

One of the most striking features of water-treatment is its power to relieve sensations of the kind we are considering. We do not say that it can succeed in all cases, for nothing can do that; but this much may be confidently affirmed, THAT ALL DRUG SUBSTANCES IN NATURE, AND ALL DRUG COMBINATIONS OF WHATEVER KIND, CAN NOT AT ALL COMPARE WITH THIS ONE AGENT AS A MEANS OF RELIEVING PAIN. And then, in the use of water, there is left no ill effect behind: no mercury to eat away the vitals and to corrode the bones; no opium to sap the very foundations of the nervous forces; no sedative to take away the strength. But the system is rendered more pure, strong, and healthful, and, as a necessary consequence, less liable to disease.

I would not, however, be understood as affirming that I would never use any other agent than water to relieve pain. I do not say that an issue, a seton, moxa, mustard draught, poultice, etc., can not in some instances be made the means of good. Especially would I have it understood as not including electro-magnetism among the means that should be avoided. In drug treatment, on the contrary, I am sure it can often be used as a great help in quelling painful sensations; although the use of this agent is as yet but little understood. And, in respect to this, as all other appliances for the relief of human suffer-

ing, we should "PROVE ALL THINGS, AND HOLD FAST ONLY THAT WHICH IS GOOD."

### PROGNOSTICS IN DISEASE.

There is an old saying, "that while there is life there is hope;" and every physician who has had some experience, can readily call to mind cases in which he thought it was not possible for the patient to survive, and in which he did finally recover.. And more: he may, in some cases, have supposed a patient actually dead—the vital principle wholly extinct—and the patient did yet recover, spontaneously, in spite of "doctors and drugs." Such cases certainly have occurred. I have myself seen at least two within the past six years: one, of a gentleman who had been for a long time delirious in fever, and before I had seen him; the other, a child that had cholera, and appeared to be dead, but which lived. The older a physician becomes, the less willing will he be to prognosticate *positively* in any given case.

But there are signs which serve us to some extent in forming an opinion as to the probability of recovering in severe illness. These it is proper I should speak of, for the general reader, as well as the professional, is interested in them. For the want of a little knowledge of this kind, it often happens that the physician is sent for too late to be of any service, while, on the other hand, he is not unfrequently summoned when there is no need of his services. Hence there is waste of both time and money. But without further remark I proceed to state some of the more prominent among the unfavorable symptoms, as we find them occurring in disease.

*Fainting* is not usually an alarming symptom. When it happens from the loss of a small quantity of, or from seeing, blood, it should excite no alarm. But if it happens after a profuse hemorrhage from any part of the body, it is to be looked upon as an unfavorable omen. Fainting in childbirth is never a good symptom, although many do well under such circumstances.

*Lock-jaw* that is caused by a wound however small, is always to be regarded as a very serious affair.

*Convulsions* are always dangerous if accompanied with stupor and heat in the head. They are more dangerous in the old than in the young, and less dangerous in women than in men. But puerperal convulsions are always highly dangerous.

*Hiccough* is always an unfavorable omen in the advanced stages of disease. It is not, however, necessarily fatal, as some have supposed.

*Stupor*, or *Coma*, and an irresistible propensity to sleep when it is



not needed, should always cause alarm. These symptoms are not, however, by any means necessarily fatal.

*Delirium*, although never a favorable symptom, should excite, in most cases of acute disease, no immediate alarm. If the patient have been long ill, and the delirium is of the low, muttering kind, it denotes great danger. In the latter stages of pulmonary disease it is almost necessarily a fatal omen.

*Loss of memory* is always to be dreaded in fevers, although persons have gone for weeks and even months without remembering any thing, and yet have recovered.

*Squinting*, in affections of the brain, denotes great danger.

*A dilated, contracted, or immovable condition of the pupil of the eye* is an unfavorable symptom, particularly if it remain for any considerable time.

*Restlessness in bed*, in an advanced stage of disease, is an unfavorable omen. *Picking at the nose, lips, and teeth*, in severe and protracted fevers, is always to be dreaded. *Twitching of the tendons of the face, and grinding the teeth*, are always unfavorable.

*Sleeping with the eyes half closed, the eyeball being turned upward*, is an ominous symptom in any disease.

*An expression of great anxiety* always denotes danger in a protracted disease. Presentiment of dissolution is also to be looked upon as an unfavorable omen, but by no means is it always to be depended upon.

*Deafness*, occurring in fevers, denotes severity of disease, but should cause no unnecessary fears.

*Diarrhea*, when it occurs after a disease has been of long standing, is a bad symptom. Passing the stools involuntarily is always to be looked upon with suspicion; but the discharge of wind from the bowels with a noise is a favorable omen.

*Involuntary discharge of urine*, as well as *undue retention*, are unfavorable symptoms.

*Vomiting* is not necessarily an alarming symptom. If it happens in a severe fever, is protracted, and especially if the matters ejected are putrid and dark colored, there is great danger. This is particularly true if it happens in the latter months of pregnancy.

*Sudden cessation of pain* in acute affections of the bowels that have been for a number of days existing, is always to be regarded as a very dangerous symptom; it indicates that mortification is setting in. Still, it should be remembered that physicians have sometimes, under such circumstances, left the patient, thinking he could not possibly recover, when, to their great astonishment, it proved that the cessation of pain only indicated the beginning of a convalescent state.

*Swelling of the limbs* is often an unfavorable condition; but a sudden cessation of this symptom, in severe chronic affections, denotes the approach of death.

*Great and protracted difficulty of breathing* is an unfavorable omen, but asthma alone seldom destroys life.

*A severe chill* is not necessarily a dangerous symptom, as every one knows; but if a severe rigor happens in a severe chronic disease, there is reason to fear the formation of pus in some internal part.

*Want of sleep* is an unfavorable symptom, although persons sometimes tell us that they have passed several days and nights without repose, and yet recover favorably in the end.

*Acute disease in pregnancy* is always attended with greater danger than at other times. If a consumptive woman becomes pregnant, as often happens, the disease is arrested for the time; but it breaks out with redoubled force in a few weeks or months after the delivery has taken place.

#### OF THE SICK ROOM.

It has been ordained by the all-wise Creator that we should be subject to disease. I know it will be said that if we observe nature's laws properly, the stream of life will flow so smoothly and so perfectly onward that no adverse winds can ever ruffle it. But, I ask, who lives uniformly in this beautiful and obedient way? Who has not, at some period of his life, been sick? Who among all the wises of his kind has been wise enough always to avoid the causes of disease? Who is there that does not, sometimes at least, do that *knowingly* which he has the best possible evidence must injure his health? I am well aware how much has been said in modern times about "following nature's laws," "living true to nature," and the like. But much as I myself prize a knowledge of the laws of life and health, I have yet to see the first man or woman who is able, steadily, continuously, and uniformly, to obey those laws. Besides, we are all liable to accidents of various kinds—accidents, too, which are now, and ever must be, to a greater or less extent, unavoidable. From all this it follows that care and forethought, in regard to sickness, are duties of us all.

Good nursing has been said to be the best part of medical treatment. This is true, in many cases at least. It often happens that when the physician has done all in his power, given the best of advice; in short, when he has performed his duty in every respect, his efforts are yet wholly thwarted merely for the want of what is termed "good nursing." So, also, a good and efficient nurse often makes up what is lacking in the medical adviser, and in reality cures the case.

Nursing, therefore, should be studied as a science and an art. It should, moreover, be honored and dignified, and be paid in proportion to its importance and worth.

People often do great mischief in going to visit the sick when they can be of no possible benefit to them. This happens more frequently in the country, where it is more the custom to "mind other people's business," than it is in the cities. They often go to see the sick merely out of curiosity; there is some new doctor or some new mode of practice on foot which must be looked into. A good deal of advice, too, must be given on such occasions. "Why, I should think it would be the very death of you to get into a cold wet-sheet;" "It will certainly kill you; these water-doctors kill a great many folks," and the like wise assertions are made by the old women of both sexes. It will be better for the world when people learn "to mind their own business" in matters of this kind. The very air of a sick room is precious—if it is pure, especially; and if it is not, going into it to breathe it only makes it the worse. Besides, too, the sick are worried by having to see too much company. A few friends only are all that can be of any possible service; and in a case of severe illness all others should positively be forbidden access to the sick room.

In childbirth, especially, are these cautions necessary. I have had more trouble from this one source of the puerperal patient seeing company too soon after labor than from all others combined. It should be remembered that recovery from labor is more apt to be attended with dangerous mishaps than labor itself. The most important piece of advice, then, connected with this subject, is, "DO NOT RECEIVE THE VISITS OF YOUR FRIENDS AND ACQUAINTANCES FOR MANY DAYS AFTER THE BIRTH."

Husbands and wives, parents and children, sometimes make themselves a great deal of trouble in varying as to what kind of medical treatment they shall have. If the wife believes in hydropathy, the husband, perhaps, believes it all humbug, and snarls at her for wanting any thing but good old allopathy, as he calls it; and so the contrary. Now I suppose that John Bull would say in these premises that "the wife should submit herself to her husband." Brother Jonathan might say that the wife has as good a right to decide as the husband has. Perhaps this is so; I shall not pretend to determine it. But this I do say, *whatever kind of treatment one partner is to have, the other should not oppose it.* Certainly one should encourage the other rather than set to bickering, and thus only make things worse. It is always much better in families if there can be agreement in these things.

## CHAPTER II.

### OF FEVER.

THE word FEVER is derived from a Latin term, which signifies *to purify*. The ancient idea respecting fevers was in accordance with the name. It was believed that febrile attacks are a means of purifying the fluids of the system.

Medical writers have always been puzzled in their attempts to define fever. "A fever," according to Fordyce, "is a disease that affects the whole system: it affects the head, the trunk of the body, and the extremities; it affects the circulation, the absorption, and the nervous system; it affects the skin, the muscular fibers, and the membranes; it affects the body, and affects likewise the mind. It is therefore a disease of the whole system, in every kind of sense. It does not, however, affect the various parts of the system uniformly and equally; but, on the contrary, sometimes one part is much more affected in proportion to the affection of another part." "Fever," says Dr. Wood, "is an acute affection of the system, in which all of the functions are more or less deranged, the most striking phenomena being sensorial or nervous irregularity, increased frequency of pulse, increased heat, and disinclination for food."

*Theories.*—It was the opinion of Hippocrates, that fever is an effort of nature to expel something hurtful from the body, either ingenerated or introduced from without. Beholding a violent commotion in the system, followed by an evacuation from the skin and kidneys, with which the paroxysm terminated, he ascribed the commotion to a fermentation, concoction, or ebullition, by which the noxious matter was separated from the healthy humors; and the evacuation to a desquamation or scum, which such separation produces, or rather to the discharge of this morbid scum from the emunctories that open externally. Galen, and the older physicians generally, supported this same doctrine, and it was, in fact, the only theory of fevers down to the time of Sydenham, a period of three thousand years. Since that time there have been various hypotheses on the subject; but still the old theory of Hippocrates, although it is to be received with some degree of limitation,

is yet the most probable one. "It is not only innocent," says Dr. Good, but highly ingenious and plausible."\*

The Hippocratean theory, however plausible and safe apparently, has been the source of mischief when carried out in practice. Thus, for example, the febrile commotion, and particularly the hot fit, has been purposely increased with the view of aiding nature in her curious but unknown process of expelling morbid matter from the system. In this way the most dangerous consequences have followed. Generally, however, the practitioners who have believed in this theory have resorted to the cooling rather than the stimulating plan of treatment.

Another theory of fever is that of Boerhaave, a most virtuous, honest, and learned man of the last century. He attributed fever to a peculiar viscosity or lensor—a something cold—in the blood. And hence arose the mischievous practice, comparatively in modern times, of treating fevers upon the heating or stimulating plan.

A later theory of fevers was that of Stahl, Hoffman, and Cullen, founded on the doctrine of a spasm in the extremities of the living fiber.

Lastly, a still later theory was that of Clutterbuck, Broussais, and others, by which fevers were identified with inflammation; their proximate cause being wrongly ascribed to increased action in some part of the body.

Each and all of these theories have led their believers into different and often the most contradictory modes of treatment, from which we are to conclude that, while possessing the most benevolent intentions, men have yet been the means of destroying thousands of lives, by treating a disease the very opposite of what should have been. The most obvious, and, in practice, incomparably the safest doctrine, is that of Hippocrates, in which we are always to look upon nature as doing the best in her power to rid the body of the morbid matter which occasions the diseased action; and that whatever we do should be practiced with extreme caution, and with a view solely to aid the vital powers in expelling the causes of the disease.

Whatever may be true in regard to the nature and general tendency

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\* At all events it is to be supposed that the fluids of the system are more concerned in fever than the solids, because it is through them mostly that the vital processes are maintained and carried on. Besides, the living body is composed mostly of fluids, there being not more than one tenth part of solid matter in the whole of the living structure. It may be objected that the nerves regulate the action of the fluids; to which it may be replied, that the brain and nervous system generally is composed of about nine tenths fluid, and that the nervous influence is itself greatly dependent upon the pressure of water in the system. Strictly speaking, the truth lies somewhat between the two extremes of humoralism and solidism; but the fluids of the system are evidently mostly concerned in febrile disease.

of fever, it is to be remarked that patients, when properly treated, and not injured by harsh and injudicious measures, are often found better after an attack. This happens even after certain fevers which have had their origin in malaria, or some other poison. But we are not to understand by this that it is better to seek a fever because the patient appears improved after an attack. It is not the poisoning in such cases that causes an improvement in health, but the fasting and purification which the system undergoes during the cure. These would be still more serviceable without the poisoning or the disease.

*Names.*—A great variety of terms are applied to fever, according to the symptoms and nature of the attack. Thus a fever is said to be *intermittent* when it occurs in paroxysms, at longer or shorter intervals, leaving the patient free from it between times. *Remittent* fever has *remissions*, but not *intermissions*. *Continual* fever is that in which the symptoms continue from day to day, with little or no perceptible change. *Typhoid* and *typhus* fevers are such as are attended with great and continuous prostration of the vital powers. The term *nervous* is also applied to the same form of the disease, because the nervous system is supposed to be more especially implicated. In those febrile cases where the vital forces are strong, the fever is by some said to be *dynamic*, and in an opposite state of the system *adynamic*. *Synocha* is a term used to designate fevers of a high grade, and *synochus* a mixture of high and low. The word *sthenic* is applied to high fever, and *asthenic* to the opposite.

*Stages.*—Fever does not, as a general thing, attack suddenly. Usually there is a sense of weariness or lassitude, attended with yawning and stretching, before the full attack may be said to have come on. Sometimes the patient merely complains of a vague feeling of uneasiness, which he can neither describe nor explain. At other times the muscles feel as if they had been beaten till sore; there are slight pains in the back, and the bones and joints begin to ache. There is also occasional chilliness. Sometimes there is pain in the head, at other times giddiness. The spirits become depressed. The sleep is dreamy and disturbed. These symptoms constitute what is called the *formative stage*. They vary indefinitely in different individuals and attacks. If the fever is to be a long and tedious one, the early symptoms are more protracted, and *vice versa*.

After the formative symptoms have prevailed for a period, the *cold stage*, or *chill*, supervenes. The coming on of this stage may be abrupt and striking, or slow in its onset. Both at the beginning of the chill, and subsequently, the surface is more sensitive to the impression of cold, so that a current of cool air, or the contact of any cold substance,

sends a momentary chill over the system. Afterward the chilliness becomes more permanent, amounting to rigors, shivering, causing the teeth to chatter in some cases, the patient at the same time trembling and shaking, and feeling a sense of coldness which no degree of warmth is sufficient to throw off. The temperature of the blood has been found, under such circumstances, to fall as low as  $92^{\circ}$  Fahr. During the chilly stage, the pains and uneasiness that had been experienced previously are rendered much more perceptible.

The *cold* stage, after a period longer or shorter, passes into the *hot*. This change takes place gradually. The first sensations of heat may be agreeable, and in some cases positively of a pleasurable kind. Afterward, however, the heat becomes excessive and insupportable; the head aches in most cases; the eyes are rendered more sensitive to light, and the ears to sound. The increase of heat is not only perceptible to the patient, but to any one who makes an examination of the surface. The animal temperature, in fever, rises in some cases as high as  $110^{\circ}$  Fahr., that is, eleven or twelve degrees above its normal standard. It does not often, however, reach a higher point than  $105^{\circ}$ .

The pulse, as a rule in fever, rises in frequency in proportion to the augmentation of heat. It may also be very frequent, but small and weak, while the chill is present. In the majority of cases of fever, the pulse ranges somewhere between 90 and 110 or 115 beats in the minute. When a low or nervous fever is passing off, the pulse sometimes sinks very low, at, for example, 40 or even less in the minute. In some cases of high fever, it rises to 160, and with children it is possible for it to reach 200 beats.

It is, in the severer forms of fever, such as typhus, and the typhoid state of scarlatina, that the pulse becomes most frequent. If it is full, hard, and throbbing, the pulse seldom rises very high. As a general rule, the frequency of the pulse in fever is in an inverse ratio to the strength or energy in the system. It follows, therefore, that if the pulse is full and hard, there is less danger than where the opposite state of things exists.

*Local Complications.*—Besides the general symptoms, we have also to watch for what are called *local complications* in fever. Various parts of the body may become affected; but the head is most apt to suffer. In hot seasons and hot climates the abdomen may become most implicated. The chest is not often materially disturbed in febrile attacks.

When the patient is troubled with drowsiness, headache, watchfulness, convulsions, etc., we know the brain is affected. The headache may become, as we say, violent, attended with throbbing so

severe that we can see the pulsation in the arteries at the temples; and there may be intolerance of light, redness and suffusion of the eyes, and delirium; the brain, in short, becomes inflamed. In such cases the delirium may be what is called *delirium ferox*, or furious delirium; the patient requiring to be restrained; he has "incoherent ravings, ignorance of persons and things, which before were perfectly familiar to the individual, and yet in the midst of this the person may be rational and sensible for a single moment; he may be momentarily recalled by some circumstance, but is instantly off again." The patient is, at the same time, apt to be picking at the bed-clothes, and he is affected with tremor. There is also what is called *delirium mite*, low or muttering delirium, in which the symptoms are of a milder kind, the patient being apt to mutter to himself in an incoherent way.

The *chest* is commonly but little affected in fever, other than with rapidity of breathing. This, in some cases, becomes *very* rapid, in proportion to the patient's heat; the more fever always the more hurried the respiration. In severe attacks the lungs become congested, or perhaps inflamed; but such cases are not common.

In regard to the *abdomen*, there is usually not only loss of appetite, but the stomach and abdomen generally are apt to be tender on pressure. There is not unfrequently vomiting, there may also be purging, or the opposite extreme of costiveness. Sometimes, also, the bowels remain apparently quite healthy and natural in their motions. In other cases the diarrhea becomes violent, and it may assume all varieties of character. The abdomen, in some cases, becomes excessively swollen and sensitive to the touch. There is apt to be a sense of burning and heat in the stomach, which passes up to the throat and mouth, causing a troublesome thirst, which is not always easy to check.

The *state of the tongue* is supposed, for the most part, to correspond with that of the stomach and bowels. If the internal coat of the stomach is inflamed, the tongue will generally present a red appearance, either upon its whole surface, its edges, or its tip. But these coincidences are not always constant; the tongue *may* be red while the stomach is not inflamed, and *vice versa*. A dark appearance of the tongue is indicative of debility, rather than of actual disease of the stomach and bowels. Thirst, in some cases, indicates abdominal disease in fever; but in others it is caused simply by the general fever parching and drying up the fluids of the body.

Various other parts of the body may become affected in consequence of, or in connection with, fever. The *throat* may become in-



flamed, the *parotid glands* may inflame and suppurate, and an abscess form externally. The *eyes* may also become inflamed and ulcerate. In some few cases, more especially of children, either one or both of the eyes are lost. The *bladder* may likewise become affected, and quantities of blood may pass from it without any unfavorable symptoms. The same is true of the bowels; and in such cases we are to suppose that nature takes this method of relieving the system, constituting a natural crisis. Mortification of various parts of the surface is not unfrequent, particularly under the old methods of treatment. Not unfrequently ulceration of some of the bones, more commonly on the lower extremities, occurs, constituting what are termed *fever sores*. These sometimes prove very troublesome, remaining upon the patient for years, and perhaps rendering him a cripple for life. *Bed sores* are apt to be formed if the patient is obliged to lie much in one position, particularly if great care is not observed in changing his linen often and not allowing the parts to become too hot. If they are allowed to be both wet and hot at the same time, and filthy besides, bed sores are much more apt to be formed. In some cases the joints inflame in consequence of the fever, the hip-joint being probably most liable to become affected in this way.

A *crop of boils* is not unfrequently one of the consequences of fever. This is much more likely to happen if the patient has been subjected to a course of water-treatment. A very large proportion of fever patients treated in this way experience symptoms of this kind. These are, doubtless, beneficial in their effects, although they have often been looked upon in a different light. Patients generally who get boils in abundance, do well in the end. They are an evidence that the vital forces have power to throw morbid matters from the vitals to the surface; and one of the strongest arguments in favor of water-treatment is the fact of its often bringing on symptoms of this kind.

Upon the *skin* there may arise pimples and spots, over parts of the surface only, or upon nearly the whole of it. These specks and pimples become vesicles in some instances, containing matter or a watery fluid. In some cases the skin inflames in patches greater or smaller.

The *mind* not unfrequently suffers a good deal in consequence of fever. As a general fact, those who are properly treated by water do not lose their senses in any kind of fever; but under the old, and especially the heating methods, fever patients not only lose their recollection for weeks, but even months—the mind remaining weak for years afterward. This mental imbecility continues in some cases for life no doubt. The memory is apt to become poor under such circumstances, so that the individual finds great difficulty in transacting such

business as he was before accustomed to. In some cases great depression of spirits is experienced for a length of time after the disease. But such things, I repeat, are almost, if not entirely, unknown in water-treatment.

*Evacuations.*—If the discharges of feces and urine take place involuntarily, the fact must always be looked upon as an extremely unfavorable one. True, such cases do now and then recover, but the chances are greatly against the patient under such circumstances. Involuntary discharges denote that the head or the abdomen are severely affected, and that the patient is unconscious of what he is about. They may happen, also, in consequence of the patient being in a state of stupor, or that he has so great debility that he can exercise no control over the parts concerned in these discharges. In either case the danger is extreme.

If the discharges become very profuse, we know that there is the greater danger present. If they are very offensive it is so much the worse. The more depraved the secretions of the body the greater the danger in all diseases. A discharge of blood in fever, although it is sometimes apparently a favorable occurrence, is in general to be looked upon as a dangerous symptom. If the blood becomes effused under the skin, forming what are termed petechiæ, vibices, and ecchymoses, there is always great danger present.

If the patient persist in *lying upon the back instead of the side*, the symptom is to be regarded as an unfavorable one. Inability to swallow is a dangerous omen always, because a patient can exercise a control over the muscles concerned in deglutition long after he has lost the control of those of the trunk and other parts of the body. *Blackness upon the tongue and teeth*, before referred to, are unfavorable symptoms in such cases, although patients often recover whose teeth have for days been covered with sordes, and whose tongue has been black, as it were; still, these appearances are always to be looked upon as highly unfavorable.

*Hiccough* is to be looked upon as an unfavorable sign in fever, inasmuch as it is more apt to happen toward the fatal termination of the disease. But cases do every now and then occur in which this symptom happens in consequence of the patient being dyspeptic, in which case recovery may readily take place.

*Crises.*—We sometimes see fever end in what is called a critical way. The ancients were much in the habit of looking for critical symptoms, as they were called. Such do certainly take place in some cases. There may be a discharge of blood either from the nostrils or the bowels; or there may be purging or sweating just as the disease

is about to break up and leave the system. Dr. Gregory knew a case of fever to terminate by a great discharge of healthy urine. Andral knew a fever to end in a profuse expectoration, and another case with an alternation of sweating and expectoration. The formation of boils has in some cases appeared to be connected with a favorable issue of the disease.

*The danger* in fevers is not in proportion to the heat and excitement present, as many suppose, but to the debility. The evidences of debility are, great rapidity and weakness of the pulse, as well as weakness of the body generally. If the pulse remains long as frequent as 140 or 150, there can not be much ground for recovery. Andral remarks that he never knew a patient to recover from continued fever whose pulse ranged at 140. But recovery has been known to take place when the pulse has been as high as 160, although it must be admitted that such occurrences with adults are rare. Dr. Heberden knew a case of recovery from fever even after the pulse had been at 180. Facts of this kind should be known both for the encouragement of the patient and the physician.

*Causes.*—Different fevers have different causes in many respects. For this reason it will be a more satisfactory mode in the present work to speak, for the most part, of the causes of each separate form of fever under its own appropriate head. It should, however, here be stated that whatever tends either remotely or directly to depress the vital energies, whether in food, drink, air, occupation, medicine, or any other agency, may act as a cause of febrile disease.\*

### EPHEMERA—EPHEMERAL DIARY, OR ONE-DAY FEVER.

This is the simplest form of fever. It consists of "one series of increase and decrease, with a tendency to exacerbation and remission, for the most part appearing twice in twenty-four hours." Some, however, have made this kind of fever to extend to the period of three days. In the more simple form of an ephamera, the symptoms are usually striking, and confined to the three distinct stages of shivering

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\* Among the *remote causes* of fever, mental depression is one of the most prominent. Some persons do not become subjects of fever, go where they will, till by reason of some cause or combination of causes the mind becomes unpleasantly affected, when they readily receive the disease. It has been remarked in regard to the plague, that persons have not fallen victims to it until they have lost a relative, or in some other way cast down in spirits, after which they have sickened. Diemerbroeck mentions a case in which a person escaped the plague till he saw a funeral pass by; and on inquiring who it was, he found it was one of his dearest friends; he went home, and was attacked by the disease.

or languor, heat, and perspiration. The cold stage is in some cases not perceptible, languor taking its place.

The more celebrated among medical writers have divided ephemeral fever into three species—*ephemera mitis*, or mild diary fever; *ephemera acuta*, or acute diary fever; and *ephemera sudatoria*, or sweating fever. Each of these will be considered separately.

*Mild ephemeral fever* is not preceded by a chill; the pains are rather obtuse, affecting the head mostly; the lassitude and weakness are not great; the febrile symptoms are only slight; the mouth and throat are somewhat dry; the thirst only moderate, the attack passing off in a gentle perspiration. Most persons, sooner or later, experience an attack of this kind, although they may not be aware of any considerable indisposition. The attacks are slight, and need usually but little attention other than that which common prudence would dictate. It is caused, like many other fevers, by a quick suppression of perspiration; sudden heat and cold; excessive mental or corporeal labor; irregular and too little sleep; violent passions; erroneous diet; strong drink, and the like.

An attack of this kind does not strictly need treatment. A wet-sheet or two to check the fever, or almost any of the hydropathic appliances, provided no violence is done the system, will serve to shorten it and render the day of the attack, as well as the succeeding night, more comfortable. Fasting for a day is better, certainly, than the practice of purging and nauseating the system, as some recommend.

Dr. Good, in speaking of this form of fever, observes: "When a man has worked himself up into a violent and long-continued fit of wrath, whether there have been reason or no reason, and more especially in the latter case; when he has taken a long and fatiguing journey on foot, walking with great speed, and suffering beneath great heat and perspiration; or when he has devoted the whole of the day to a particular study so profound and abstracting as to exhaust almost the entire stock of vital power that can be drawn from other parts of the system at the single outlet of the attention; and when beyond this he still urges his abstruse and protracted train of thought into a late hour of the night or the morning, there is a general irritation or undue excitement produced that simple rest can not at once allay; his sleep is short, hurried, and interrupted, if he sleep at all; he yawns, stretches his limbs, turns himself again and again in his bed for an easy, perhaps for a cool place, for his skin is hot and dry; but for a long time he turns in vain. The morning strikes upon his eyes, but he has had little sleep, and no refreshment; he is indisposed to leave his bed, and if he rise he is still feverish and unfit for business. He

passes the day in disquiet, which, perhaps, increases toward evening; but at night he feels a moisture breaking forth over his skin, and comfortably succeeding to the heat and dryness that have thus far distressed him; he recovers, perhaps, even while sitting up; but if, as he ought to do, he goes to an early bed, a quiet and refreshing sleep supervenes, and he wakes to the health he before possessed."

In these cases of sleeplessness, if the patient should take a thorough bath, by means of the wet towel, or, what is still better, the well-wrung rubbing wet-sheet, repeated two or three times in quick succession, if need be, he will hardly fail of obtaining good sleep, and consequently of warding off the indisposition for the following day. Drinking cold water freely under such circumstances also favors sleep; a cool pillow, and warmth to the feet, when necessary, tend to the same end. In all such cases of bodily or mental fatigue as those enumerated by Dr. Good, the warm-bath, for five or ten minutes, is a valuable means. But a cold-bath by immersion, or any considerable cooling of the system, is inapplicable, and often dangerous in such cases.

In the *acute* variety of ephemeral fever there is a severe chill; the pulse is at first small and contracted, but afterward full and strong; pain in the head and limbs, and heat considerable; great debility, and perspiration profuse. The case is not, however, always so strongly marked.

More commonly this kind of febrile attack is brought on by disorder of the stomach, the more obvious cause being a surfeit in either eating or drinking, or both.

The most speedy method of cure is to unload the stomach and bowels as soon as may be of their obnoxious contents. The warm emetic should be resorted to as the first measure; the patient should be made to drink warm water in sufficient quantity to induce full and free vomiting, and the process should be repeated till nothing but pure water is rejected. At the same time, clysters of warm water should be had recourse to in the freest manner, the same being repeated, in connection with kneading of the bowels, until nothing but pure water can be made to pass. Abdominal frictions in the sitting-bath, tepid or cold, according to the strength, will also be found highly useful. In connection with these means, the common febrifuge treatment by wet-sheets, baths, etc., is to be practiced according as the symptoms demand.

The *sweating form* of ephemeral fever does not occur in our country at the present day.

It is said to have made its first appearance in London in 1480 or 1483, first showing itself in the army of Henry VII., on his landing at

Milford Haven. In London, to which it does not seem to have traveled till a year or two afterward, it took up its abode, with various intermissions of activity, for nearly forty years. It then visited Holland, Germany, Belgium, Flanders, France, Denmark, and Norway, among which countries it continued its ravages from 1525 to 1530. It then returned to England, and was observed for the last time in 1551.

According to Dr. Cains, as quoted by Dr. Good, the sweating fever prevailed "with a mighty slaughter, and the description of it is as tremendous as that of the plague of Athens." And Dr. Willis observed, "that its malignity was so extreme, that as soon as it entered a city it made a daily attack on five or six hundred persons, of whom scarcely one in a hundred recovered." This fever, we are told, was not attended with buboes or carbuncles, as often happens in the plague, although it was nearly or quite as fatal. It had but a single paroxysm, and appeared equally fatal in the cold and in the hot stage; but if the patient reached the sweating fit, he commonly escaped.

It was supposed by some, that diseased wheat, in connection with other unfavorable circumstances, was the cause of this singular and fatal disease. This grain is found to be more subject to mildew, smut, and spur than the other cerealia; and it was found that those who ate oaten or barley bread instead of wheat, were not affected.

The sweating plan of treatment was supposed by some to be the best in this fearful malady; but Dr. Good informs us "that the modes of treatment adopted were often puerile, and offer nothing instructive, and that a good constitution and exposure to free air seem to have been most successful in promoting a cure."

### HECTIC FEVER.

HECTIC, from a Greek word signifying *to consume*, is a form of fever that accompanies various states of debility, such as chlorosis, scrofula, lumbar abscess, diabetes, etc., but is best known in its connection with tubercular consumption. The system is generally a good deal emaciated in hectic, because of the severity of the disease of which it is symptomatic. It does, however, occur, in some cases where it is not possible to account for it on the score of organic disease.

Hectic usually begins with increased frequency of the pulse, accompanied with more or less heat in the system generally, but more especially in the hands and feet. It is most apt to occur in the afternoon, and it goes off before the beginning of the next day. In a few instances it happens twice in the twenty-four hours.

It sometimes happens that the attack of hectic is preceded by chills.

but ordinarily it comes on gradually, the patient experiencing only a degree of uneasiness and lassitude as a forewarning.

In marked cases of this disease, the pulse becomes very frequent when the exacerbation is fully formed. It is not an uncommon thing for it to rise to 120, or more, in a minute; but it is weak, and sometimes tremulous, jerking, and unequal. The respiration is hurried, the face flushed, the eyes sparkling, and the whole surface hot and dry. There is general paleness, but upon the cheeks the "rosy tint" is seen, which is but too often looked upon as an evidence of beauty and health.

A striking characteristic of hectic is that peculiar kind of perspiration known more commonly by the name of *night-sweats*. This perspiration, it is true, does not always happen while the patient is in bed; but it is most apt to occur in the night-time, and more particularly toward morning. This circumstance is in part, probably, owing to the patient getting warmer in bed than he is while being up during the day. The perspiration is the natural effort of the system to rid itself of the fever, evaporation being naturally a cooling process. These sweats, however, debilitate the body a good deal, and should, if possible, be prevented. This, in most cases, can be readily accomplished by means of the tonic property of cold water.

After hectic fever has continued for a considerable period, and the patient has become a good deal debilitated, a colliquative diarrhea is apt to set in. This, unlike many other forms of looseness, is not to be encouraged, but should be prevented as much as possible by all natural and invigorating means.

The animal heat does not become so much elevated in hectic as in some other forms of fever. It may, however, reach as high as 105° Fahr., according to Sir Charles Seudamore.

The appetite is usually unimpaired, and in some cases it is even more than natural. If the stomach is the original seat of the disorder, the desire for food may, in some cases, become deficient. The tongue in general presents a clean, natural appearance, with the exception, perhaps, of a certain degree of smoothness, which is in some respects peculiar.

Hectic, like all the other fevers that continue for any considerable length of time, wastes the flesh, causing, in some cases, a great degree of emaciation. In its latter stages the extremities—more especially the lower—are apt to become swollen. This occurs most toward evening, after the patient has been up during the day. The recumbent position at night serves again to remove the œdema. The symptom is an unfavorable one, but not necessarily fatal. With all the exhaustion and loss of flesh, the patient is yet able generally to sit

up much of the time till very near death, sometimes, indeed, dissolution takes place while he is in his chair, without a groan or a pang. Death in hectic, as indeed in most diseases, is unattended with suffering, whatever the previous pains may have been.

The mind is generally clear to the last in this disease, although in some cases where the fever runs uncommonly high it may wander somewhat.

*Treatment.*—This, in the immediate attack, is to be conducted on general principles, according to the degree of heat present. To remove the undue augmentation of temperature, which is the immediate cause of the patient's suffering, sponging the face and temples, as well as the whole surface, and soaking the hands, and, if necessary, the feet, in moderately cold water, are the appropriate means. A tepid-bath is very useful, as also the dripping-sheet. Evaporating cloths may also be placed upon the hands and various parts of the body, in order to take off the superabundance of heat. **THE MORE THE HEAT IS PREVENTED THE BETTER FOR THE COMFORT AND THE STRENGTH.**

In hectic, as in most other matters of medical treatment, there is a great deal of what may be called *medical tinkering* among the so called regulars of the healing art. Dr. Mackintosh, who was no mealy-mouthed pretender, exposes this evil in his characteristic way. He observes: "There is no case in which the difference is so strikingly shown between routine practice and that which is directed to sound pathological views. The routine practitioner will be invariably found to treat some of the symptoms thus: Has the patient no appetite?—Give him a tonic. Is he purged?—Prescribe an astringent. Is he griped?—Give him an opiate. Is the urine scanty?—He must have a diuretic. Has he a profuse perspiration?—Let acid drops be exhibited." This is the way the medical treatment of hectic generally goes even at the present day, the prescriber paying regard merely to *symptoms*. *Principles* are left out of the reckoning.

Now it should always be remembered **THAT HECTIC IS A STATE OF DEBILITY.** The treatment, therefore, must be regulated accordingly. And who does not know at this late day that cold water, fresh air, and exercise are incomparably better for invigorating the system than all the drug tonics in creation, admitting even that they possess the properties claimed for them?

One of the most striking, among the good effects of water, is its power to check night-sweats. A person thus troubled, has the rubbing wet-sheet applied two or three times a day, according to the necessities of his case, or he merely washes himself with cold water, wet-towels, and the like, and very soon he finds that he becomes so much



improved and invigorated as to be able to avoid the weakening night-sweats. He might fail, it is true, if he should continue to sleep in too hot a room, in a feather bed, or under too many warm clothes. But if he bathes, and takes reasonable care in all other matters pertaining to health, he will very soon find his night-sweats cured. His sleep will be more sound and refreshing, and he will feel in all respects improved. This, then, is the more important part of the treatment of hectic—to prevent the night-sweats and the fever, rather than to wait for the fever and then attempt its cure.

As to the looseness of the bowels in such cases, clysters of tepid water, the sitting-bath—not too cold—and the wet girdle, worn the most or the whole of the time, are all invaluable palliative means. When death must come upon us, as with many it must in such cases, it is a satisfaction to know the best means of palliation. It is natural to desire euthanasia—an easy death. Water, properly applied, is God's own gift to man, as a remedial substance with which to soothe his pains and anguish, even to the last.

#### INTERMITTENT FEVER.

Before proceeding to speak of ague and the different forms of miasmatic fever, it will be necessary to make some remarks on the subject of malaria.

The EXCITING cause of INTERMITTENT and REMITTENT fevers, as well as many of the forms of BILIOUS FEVER, is well known to be those invisible emanations coming from swampy, marshy, and other damp places, and arising from the decomposition of vegetable products. These have been designated, usually, by the name of *marsh miasmata*. Latterly, however, the Italian word *malaria*, which signifies *bad air*, has been adopted, and is on the whole a more elegant and convenient term. As a medical word, malaria has by some been used to express any kind of impure air of which the writer wished to speak; but among the best authors of the present day, it means simply that kind of impure air of which I am now speaking. Large portions of the earth are scourged with the effects of malaria. But in no country, probably, are intermittents and remittents more common than in many parts of the United States. These diseases attack persons of all ages; the infant at the breast is liable to them, as well as those of advanced years. The middle-aged, however, are most subject to them, and males more than females. Middle-aged persons are usually more actively engaged out of doors than either the younger or the older portions of community. Males also, are for the same reason more exposed than

females to malaria. Hence, therefore, the explanation of the facts which I have stated.

I have referred to malaria as the *exciting* cause of intermittents and remittents. But it is to be remembered in this connection, that however great the predisposing causes of disease might be, these forms of fever could not possibly occur if malaria did not exist. Malaria may therefore be said to be the *primary* exciting cause of these maladies.

Malaria is not perceptible to any of our ordinary senses. Of its physical and chemical qualities nothing whatever is known; we judge of it only by its effects. That there are emanations of this kind, we know unequivocally, by the fact that the inhabitants of low marshy places are subject to the particular forms of fever referred to.

Temperature exerts an important influence in the production of miasmatic emanations. It is believed that no injurious consequences can arise from the decomposition of vegetable matters, provided the atmosphere does not range at a higher degree than 60° Fahr. In accordance with the law of temperature, it is found that the farther north we go, the less liability there is to miasmatic fevers, and the farther toward the equator, the greater, for the reason that there is a greater intensity of the cause.

Moisture, also, is one of the necessary requisites to the production of malaria; but if it is in great quantity, it acts as a preventive. Moisture appears to have a strong affinity for the poison, and it is only after the rains and floods have subsided that miasmatic emanations are thrown off to any considerable extent. Heavy and long-continued rains often break up malarious fevers, while a severe drought after copious rains is attended with their greatest prevalence.

For the reason that moisture has great affinity for malaria, night air is more dangerous to breathe in miasmatic districts than the drier atmosphere after the sun has risen. It has been well ascertained that those who expose themselves in a miasmatic region to the fogs and dews of night, are more apt to be attacked with malarious fevers than such as remain within doors while the atmosphere is humid. The rule to avoid going out before breakfast or after tea, has in some instances been the means of preventing attacks of autumnal fevers, where, without this precaution, they had been common. Such, at least, is said to be the fact, although I can not speak positively respecting it from my own observation. I am aware that there is generally in society too great a prejudice against night air; and this, doubtless, should be taken into the account. Still, I should consider that the sun would have the effect of purifying the air in a miasmatic district, and if so, night air should as much as possible be avoided.

It is not in swampy districts alone that agues are produced. Thus, for example, Manhattan Island, on which New York stands, is subject to miasmatic fevers over its whole surface where it is not paved. And yet it is not of a swampy character. Much or most of the island is a rock, over which there is a stratum of fertile soil. The rock prevents the settling of moisture into the earth, so that after rains, in the latter part of summer or autumn, while the weather is yet warm, vegetable emanations are thrown off by the effect of the sun's rays. Vegetable decomposition is greater at and toward autumn, because vegetable life has for the most part run its course, and is consequently more subject to decay than in other parts of the year.

It is a well-known fact that the digging of canals and railroads, as well as the commencement of cultivation in a fertile country, is apt to be attended with attacks of malarious fever. The reason is obvious from the fact that in turning up the earth, vegetable products which have long been accumulating are thus exposed to moisture and the sun's heat, causing decomposition and the generation of the miasmatic poison. Draining of lakes, ponds, etc., is often followed by agues, because by this process matters which were before quiescent have been thus set free. Submerging meadows, constructing mill-ponds, and the like, in fertile places, sometimes give rise to miasmatic fevers, where previously nothing of the kind had existed. The reason why fevers are produced under such circumstances, is that vegetable matters are brought more under the combined action of heat and moisture, and by which decomposition is made to go on more rapidly.

It is a somewhat singular circumstance that salt marshes do not produce agues. True, in some situations fevers of this kind occur near salt water. Such is true, for example, on some parts of Long Island, which is in general a remarkably healthy region. But if the matter is examined closely, it will be found that agues occur only where there is stagnant fresh water. The springs in these parts are very copious, and the vegetation rank. But in no place where there is only salt water can ague be found. We are to account for this fact partly, 1st. Because salt tends to preserve rather than to destroy vegetable matters. 2d. Because the tides rise and fall so frequently, the vegetable impurities are washed away by it. Running water, of whatever kind, always tends to prevent malaria.

I remarked that the island on which New York is built is subject to agues. But it is a remarkable fact that miasmatic diseases do not occur within the limits of thickly inhabited parts of the city, unless the patient have been previously exposed to malaria in some other locality. "Though malarious diseases may range around a city, and

even invade the outskirts where the dwellings are comparatively few," observes Dr. Wood, "yet they are unable to penetrate into the interior; and individuals who never leave the thickly-built parts almost always escape." This fact is said to be notorious in regard to the city of Rome, and from years of observation I can speak with confidence on the same point in reference to New York. What is it that should thus shield a large city from the effects of malaria? The fire and smoke of camps is said to have put a check to miasmatic poisons, and if so, we may conclude that the many fires of a city exert the same influence over them.

It appears, also, that marsh poison is attracted toward, and has an affinity for, the foliage of trees. It has been found dangerous in malarious places to go into a thick forest, and still more so to sleep in it at night. But this source of peril, when properly understood, is capable of being made a means of protection from the miasmatic influence. In the territory of Guiana, where large trees abound, it is said that the settlers live fearlessly and unhurt, close to the most pestiferous marshes, and even to the leeward of them, provided a screen or belt of trees is interposed.

In regard to the influence of winds upon the miasmatic poison, there are some curious and interesting facts. I have myself known persons who resided upon high points, two or three miles from any swamp or place that could possibly be suspected of generating any malarious influence, but who were yet constantly subject, in the latter part of summer and autumn, to severe attacks of intermittent and remittent fever. In one case of this kind which I have in my mind, the residence was situated in a southeasterly direction from the swamp, some three and a half or four miles distant. The winds were usually from the northwest, which I inferred was quite sufficient to account for malarious attacks. In this way it may happen that a low district near which malaria is generated is less unhealthy than those on an adjacent elevated part, toward which a prevalent wind blows. One side of a mountain may be perfectly healthy, while the other side, which is exposed to malarious emanations coming from a swamp or low district near, and lying in the direction of the more prevalent winds, may be very unhealthy. A thick wood, it is said, is sufficient, in some cases, to divert the course of a miasmatic wind, so that families, and even neighborhoods, may be thus protected from its influence. Dr. Joseph Parish, of Philadelphia, was in the habit of relating, in his lectures, an instance that fell under his observation, in which a family, previously in good health, was attacked with a violent and fatal fever, apparently in consequence of having cut an avenue, for the sake of a more exten-

sive view, through a wood which intervened between them and a large track of marsh. The foregoing are important facts, and will serve as some guide to those who are compelled to select a residence in a malarious district.

There are other effects besides such as are connected with fevers, which are found to arise from inhaling the miasmatic poison, such as diarrhea, dysentery, cholera infantum, cholera morbus, Asiatic cholera, affections of the stomach, spleen, liver, neuralgia, etc. It has been asserted that the race is liable to degenerate under the long-continued influence of malaria, and that they become smaller and weaker in their bodies, and less vigorous in their intellect under such circumstances than in healthy localities; their complexion becomes sallow and yellowish; they are prematurely old and wrinkled; even the children early acquire an aged aspect, and the spirits and intellects of those who dwell in these unhealthy spots are low and feeble, and partake of the degeneration of their bodily qualities.\*

It is a consideration of importance as to what extent the dietetic and other voluntary habits of the individual are capable of modifying the effects of miasmatic poisons. Some have supposed that by strict care in every thing that pertains to health, it is possible to prevent malarious fevers, however great the exposure may be. But this, doubtless, is going somewhat too far, although it must be admitted that much may be accomplished by prophylactic measures in warding off the effects of miasmatic poison. I have known cases in which it seemed that vegetarian diet, in connection with daily bathing and good habits, generally was the cause of avoiding bilious attacks, while those who did not adopt these precautions were almost sure to suffer with fever. In some cases, however, persons have wondered how it was possible for them to be attacked with fever, when they had been so prudent and careful in diet and other hygienic habits. To account for the fact that a person may contract disease under malarious influence, however correct he may be in all the rules of hygiene, it is to be remembered that the air which we breathe exerts as great an influence on health as the food we eat. Hence it is that the most sedulous hygienist, who lives in a miasmatic district, may, in spite of all his good care, yet become a subject of fever. But with good habits the chances are much greater

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\* The inferior animals, as well as man, are found to suffer from malaria. If horses and cattle are transferred to a miasmatic from a healthy region, they are apt to sicken and die. It is said, also, that animals which are reared in malarious districts are generally unhealthy. I have been told repeatedly, by farmers and others from various parts of the West, that the livers of the domestic animals are seldom eaten on account of their being ulcerated or otherwise diseased.

to run free from such attacks ; and if one does come on it is much more readily managed, and in all respects safer than in the individual who lives freely, and takes no care of himself. Physiological well-doing is always rewarded in the physiological way, as much as moral well-doing in the moral part of our nature

*The phenomena of an attack of ague* are usually the following : when the paroxysm is about to come on, the patient experiences a sense of debility, uneasiness, or depression at the epigastrium ; he is weak, languid, listless, yawns frequently, and often says he desires to be let alone. Soon he begins to be chilly, first along the spine, and then over other parts of the body ; the blood goes inward, and leaves the skin in a "goose-flesh" condition. After the chill becomes more intense, he begins to shiver ; afterward his teeth chatter, and this has been so severe in some cases as to knock out old calomelized teeth, and to break even sound ones, it is said. The lips, face, ears, nails, etc., become blue, showing congestion of the internal organs ; the pulse becomes feeble, but quick, the respiration hurried and somewhat difficult, and pains in the head, back, and limbs are experienced. Urine may be voided frequently, but it is small in quantity, and pale ; the bowels are torpid ; the tongue dry and coated with a white fur.

After the above symptoms have lasted for a time, longer or shorter, according to the case, the *cold* stage is gradually succeeded by the *hot*. "The face becomes red and turgid ; the general surface hot, pungent, and dry ; the temples throb ; a new kind of headache is induced ; the pulse becomes full and strong, as well as rapid ; the breathing is again deep, but oppressed ; the urine is still scanty, but it is now high-colored ; the patient is exceedingly uncomfortable and restless. At length another change comes over him : the skin, which, from being pale and rough, had become hot and livid, but harsh, now recovers its natural softness ; a moisture appears on the forehead and face ; presently a copious and universal sweat breaks forth, with great relief to the feelings of the patient ; the thirst ceases ; the tongue becomes moist ; the urine plentiful, but turbid ; the pulse regains its natural force and frequency ; the pains depart ; and by and by, also, the sweating terminates, and the patient is again as well, or nearly as well, as ever." Such are the phenomena of a paroxysm in a well-marked case of ague, when it is not interfered with by curative measures.

The period that elapses between the *termination* of one paroxysm of ague and the *commencement* of another, is called an *intermission* ; the period that elapses between the *beginning* of one paroxysm and the *beginning* of the next, is called an *interval*.

There are various *types* of ague: when the fit occurs at about the same hour *daily*, it is called *quotidian*; when it occurs *every second day*, it is *tertian*; when every third day, that is, skipping two days between the attacks, it is called *quartan*. These are the three principal types of the disease. The *tertian* form is the most common. The paroxysms in the *quotidian* form are more apt to occur in the morning; in the *tertian*, at about the middle of the day; in the *quartan*, toward evening.

This disease may attack a person at any time, but it is much more apt to do so in the autumn or the spring than at other seasons of the year; but most commonly in the former. In the autumn, after vegetation has, for the most part, gone to its height, decomposition goes on more rapidly; and hence the greater prevalence of the disease at this season.

The natural duration of ague it is not easy to determine. In most cases the patient suffering in this way is obliged to remain in the midst of the cause of his disease. If a certain number of cases of ague could be removed wholly from the influence of the malarious poison, we would thus be enabled to form some idea of the average duration of the disease. As we see it in the present state of things, it is observed sometimes to consist of a single paroxysm only; in other cases of a number, and in some cases the disease resists all ordinary remedies for months, and even years.

*Age*.—The middle-aged are more subject to ague, infants and aged people being much less frequently attacked; but children, even at the tenderest age, do sometimes have it; and it is thought to have attacked the unborn fetus, as indicated by the periodical trembling in the womb, of which the mother, when herself the subject of the disease, has been sensible in the interval of her own paroxysm. Old persons, likewise, may suffer from ague. Negroes are much less susceptible of the disease than whites.

*Treatment*.—It has been a doctrine with many physicians, more especially those who lived before the present century, that ague should not be interfered with. This belief arose, doubtless, from the circumstance that the disease has always, until very lately, been looked upon as healthful. "An ague in the spring is physic for a king," was an old English saying; and I have no doubt that when the disease was allowed to run its course in a natural way, things went on better than they now do under the powerful modes of drugging, which are almost everywhere adopted. What fortunes have been made in the United States by the sale of "cholagogues," and other pretended cures for this disease; and what havoc has been made with thousands upon

thousands of constitutions with the arsenic—a cheap medicine—which these mixtures and compounds have contained! People have been too much in the habit of thinking if they can but get their ague “broke,” that is all they have to care for. But they should remember that in dosing themselves with those vile drugs, of which they know nothing, they will be very apt to get their constitution “broken,” whereupon, also, in most cases, the ague comes back upon them, so that they have at least two formidable enemies to contend with at once, instead of one as before. I say most unhesitatingly, that if I had the ague I would not, on any account, take drugs to cure it, but would trust to nature and simple fare much sooner.

Intermittents, if left to themselves, certainly have a tendency to cease. The milder cases, it is found by observation, terminate spontaneously with the seventh or eighth, and sometimes as early even as the third, fourth, or fifth paroxysm. More than one half of the tertian cases that occurred in the infirmaries of the *Salpêtrière* of Paris, in the autumn of the sixth year of the Republic, terminated with the ninth paroxysm, or previously. The treatment employed was of the expectant kind, such as was calculated to have no direct effect whatever upon the disease.

“Intermittents,” observes Dr. Doane, “are sometimes cured merely by diet and regimen. Of twenty-three patients sent to the hospital La Charité, for the purpose of testing the efficacy of the mistletoe, M. Chomel states that the disease ceased immediately in seven of them, although no medicine was administered to them.”

And yet I hold that we have something to do, and that, too, which is positive, in the management of this disease. Why all the pain, uneasiness, fever, and debility, if we have not? Are not pain and bodily ill-feeling the language of nature that we are to act? So I believe; but what we do must be in accordance with the physiological laws; else we shall do more harm than good, although we may relieve symptoms for the time.

Before proceeding to give my own view as to the treatment of ague, I will mention some things which have been recommended by others.

With the view of making a strong and obvious impression upon the system, in the immediate anticipation of a paroxysm of ague, emetics have been used with apparent advantage. Some practitioners have given the tea of boneset for this purpose, and with the effect of arresting not only the paroxysm, but the progress of the disease. Pure water, however, is fully as efficacious as boneset or any other drug emetic, provided enough of it be swallowed within the course of a few minutes after commencing the process. Vomiting cleanses the pa-



tient's stomach, which is generally foul under these circumstances, throws the body into a perspiration, all of which must do him a considerable amount of good. It is certain, moreover, that this practice does sometimes not only set aside the paroxysm for the time, but likewise prevents its return. This we have on good authority, although I must admit I have not myself practiced with emetics of any kind under these circumstances.

*Blisters, when made upon a large scale on the extremities, so as to be in full operation before the paroxysm,* will sometimes cut short, or rather prevent, the chill of ague. Bad as blisters are, I am not quite certain but that they do more good than harm in some such cases, as well also as in remittent fever; but why resort to such means, when we have in hydropathy a remedy which is not only far more powerful, but absolutely safe? A more rational and safer mode than to resort to blistering, would be the application of mustard or ammonia for the rubefacient effect. But these, likewise, are wholly unnecessary, provided the case is treated in the proper hydropathic manner. Blisters I should not use upon myself in ague or any other fever.

*Powerful mental impressions* have often been known to break up ague. It is said that Quintius Fabius Maximus was cured of an old quartan on the day of a great battle. Persons have been cured of this disease by being made to drink fresh blood, by swallowing a bruised spider wrapped up in a raisin, or spread upon bread and butter, keeping a spider suspended from the neck in a nut-shell till it dies, and the like. Excessive joy, anger, grief, terror, etc., have also been known to arrest an attack of intermittent. Of course we can not depend upon such agencies, or bring them to bear in practice generally; but a knowledge of the facts will sometimes prove useful, which is a sufficient reason for mentioning them.

Among the simple remedies that have been found successful in the treatment of ague, *charcoal* is to be mentioned. It is said to have been especially successful in those cases in which the digestive organs have been more particularly affected, and known by symptoms of nausea, vomiting, hiccough, flatulence, diarrhea, dysentery, etc. The remedy has been given in doses of ten to twenty grains, along with arrow-root or some other substance by which it could be more readily swallowed. Attacks have been cured by the time two drachms of the charcoal have been given in this way. In many of our American cases I apprehend it would require a much larger quantity, if, indeed, the medicine could cure it at all. The remedy is a simple one, which can do no harm, and is therefore deserving of trial. Dr. Watson, of London relates the: a clergyman with whom he was acquainted, as-

sured him that he seldom failed to cure agues among his parishioners by administering to them the snuffs of candles which he took care to have collected ; but the preacher did not inform his patients what his black powder was composed of. The charcoal contained in the candle-snuffs may have cured them, but the imagination possibly had more to do with it. If the preacher could persuade his people beforehand that he was certain of curing them with a certain powder, he would be very apt to do so even though the remedy should contain no medicinal power. So much has the imagination to do often in curing diseases.

There is one curious remedy for ague which has gained a good deal of celebrity with the profession in the old country : it is *the web of the black spider*, inhabiting old houses, barns, stables, etc. Dr. Watson, of London, asserts that this substance has been tried on a tolerably large scale, and that the testimony to its influence in curing agues is very strong. It appears, according to this author, that in the year 1760 a number of prisoners from the vanquished squadron of Thurot having been landed in the Isle of Man, were practiced upon in ague by Dr. Gillespie, and that among them, as well as the inhabitants of the island, the disease obstinately resisted both Peruvian bark and such other remedies as he had recourse to. Dr. G. was informed by an old French physician belonging to the squadron, of the alleged efficiency of cobweb in certain forms of the disease. He made trial of it, and was eminently successful. He succeeded with it in more than sixty cases in the Isle of Man, and afterward had further experience of its utility in Ayrshire. Afterward, cobweb, etc., was tested by Dr. Jackson in 1801, in the hospital of the army depôt in the West Indies. Several cases of ague, on which bark, arsenic, or mercury, singly or alternately, had made either a very temporary impression or none at all, were selected for experiment. In four of these cases, two pills, containing each five grains of cobweb, were given at intervals of two hours, commencing six hours before the expected time of recurrence of the paroxysm. The fit did not return.

*Bleeding in the cold stage of intermittents* was strongly recommended by the late Dr. Mackintosh, of Edinburg, and his followers. At present, however, the practice has gone into disrepute, and is not, I think, recommended by any author or practitioner of note. "I object to bloodletting," says Dr. Watson, "because it appears to me to be quite unnecessary ; because it is not such as the nature of the symptoms would suggest ; because it tends to produce subsequent debility, which we should not needlessly inflict ; and because the experience of other sober-minded men, who have given the method a fair trial, does not

bear out the statements made by Dr. Maekintosh in respect to its usefulness."

*Arsenic*, it is contended, has great power over the paroxysms of ague, and this I freely admit. It has the recommendation, moreover, that it is *cheap*. But what of its effects? That is the main consideration. As an ague is not so bad as a remittent or continued fever, so there are many other things that are more to be feared than the disease, and among these are the effects of arsenic. Says Dr. Watson, "The poisonous or hurtful effects that we have to look out for when arsenic has been prescribed are, loss of appetite, nausea, and sometimes vomiting, griping pain of the stomach and bowels, and diarrhea; and if the medicine be continued, *fainting* is often added."

Much is claimed for *Peruvian bark* or its concentrated salt, *quinia*, in the treatment of ague. It is well known that this drug, if given in sufficient quantity, will generally arrest the paroxysms of the disease; but does it *cure* the patient? Is it not very apt to cause enlargement of the liver and spleen, and various gastric troubles? It is my firm conviction that quinine does more harm than good to the constitution in the end. Besides, also, it fails in many instances of arresting the attacks.

*Mercury*, as well as all other metallic poisons, has been given for this affection. According to Sir James Johnson, it was tried extensively some years ago on the crews of the two ships of war, *Grampus* and *Caroline*, in consequence of the stock of *Peruvian bark* being exhausted. The paroxysms were invariably put a stop to as soon as the system was saturated; but three fourths of the patients thus treated relapsed as soon as the effects of the *mercure* had worn off, and this after three, and in some instances four administrations, amounting to salivation. We can therefore reckon but little upon this so-called medicine for curing ague. The medicine is in fact worse than the disease.

I am now to state what I would myself recommend for ague. The *cold*, the *hot*, and the *sweating* stages are to be considered, and lastly the period between the attacks.

The method I have oftenest adopted in the cold stage, is to put the patient in the wet-sheet beforehand, giving him a rubbing in the cold shallow-bath five or ten minutes about every half hour, and then re-applying the wet-pack. The wet-sheet, frictions, and the use of cold water generally, tend to keep off the pains, to shorten the chill, and to render the subsequent fever less. Whenever there is help enough at hand, a constant rubbing in the half-bath—the water nearly or quite cold—with a good deal of cooling of the head, is one of the best

methods. The bath should, if possible, be commenced before the chill, and be continued until after it has passed off. The chill of cold water is more bearable than that of the disease.\*

On the principle of anticipating the cold stage with a stimulant, "A large draught of cold water," says Dr. Good, "has not unfrequently been had recourse to. The object is," continues this writer, "by taking it about half an hour before the cold fit is expected, to excite a strong reaction and powerful glow over the entire system against the time when the cold fit returns, and thus to preoccupy the ground; and thus by disturbing the regularity of the type, to subdue the intermittent altogether." I do not mention this mode of practice with a view of recommending it. A much better mode would be to give largely of warm water—and perhaps that which is raised a little above the temperature of the blood would be preferable—for some time before the cold fit makes its appearance. The plan of giving cold water is liable to the objection of increasing the chill, thus making it worse than it otherwise would be. Cold, it should be remembered, is never a direct stimulant, but only sedative.

In the chilly stage, and still better, as some assert, somewhat before it, when the premonitory yawning and slight rigors appear, immersion in the warm-bath, or perhaps still better, the vapor-bath, continued until the reaction is complete, will be found effectual—in many cases, at least—in preventing the coming on of the hot stage, and give rise in its stead to a mild perspiration. Some have recommended, likewise, that the patient on the day of the fit be immersed in a bath raised to blood heat, and to remain in the water as long as his strength will allow. The former, however, is a preferable mode.

*The treatment of the hot stage* is very simple. We manage according to the pulse, and the amount of fever, just as we would in any other case. Affusion with cold water, dripping-sheets, half-baths, the cold-bath, tepid-bath, and even the warm-bath, as before remarked, bring down the heat and pulse in fever; any or all of these methods we may use; in short, the whole of the cooling plan, *according to the case*. And what is truly admirable in this treatment is, *we prevent the sweating stage*. "But why thus hinder the operations of nature?" one objects. "What is the sweating stage? Is it not a work of nature in the effort of cooling the system, by bringing out the serum of

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\* The celebrated Wesley, who wrote a work on water, called *Primitive Physic*, asserted that the cold-bath cures an ague, and he gives facts in confirmation of his theory.

A late writer, Dr. Wood, of Philadelphia, says that pushing the patient suddenly and without warning into deep water, thus making a powerful impression upon both mind and body, has proved effectual in one very obstinate case of this disease.

the blood upon the surface, thus to produce a refrigerant effect." Now who does not see that if we cool the system thus effectually by wet-sheets, etc., we so much aid the natural operations that there is no need of the refrigerant process alluded to? If it is objected that perspiration brings out of the body morbid matters along with it, I answer, these are but small in proportion to the invisible and sometimes visible eliminations that go on while the water processes are being practiced. Besides, also, *the feelings of comfort* that arise from the practice of preventing the fever, and thus frustrating the sweating stage, indicate clearly that the method is a salutary one.\*

I have treated several cases of ague in the following way: first the wet-pack, before and through the time of the chill, alternating with the half-bath friction every half hour, or thereabouts; after the chill had passed, the pulse was watched closely, and the treatment kept up five, six, or eight hours unremittingly, according to the symptoms; the chill was thus abbreviated, or prevented altogether; the hot stage altogether kept off, and the sweating stage entirely prevented. How could a paroxysm of ague live under six or eight hours of the constant practice of the water processes? By such treatment we uniformly convert *the sick day into a well one*; the pains, the headache, and the debility—all of these are prevented by such a course.

How long will it take us to break up an ague by such treatment? I can not speak from experience in a large number of cases, for we do not often have such in this city. Every year, however, during my practice, I have had to treat several. In some the attack is broken up in a day, as it were; in others a week, perhaps, of strong treatment may be needed. My method has been to give a good deal of tonic treatment on the well day, as also on the sick day. The object has been to cure the patient by preventing his pains and fever, and by making him stronger. I am sure there is less liability to a relapse in this disease when treated by water than by drugs. Here, in New York, the patient is away from malarious emanations; this is an important help.

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\* Dr. Bell, the celebrated writer on Baths, speaking of an extensive experience in the treatment of this disease, and after recommending certain sedative measures, well remarks: "But if we desire to give the speediest relief in the shortest period, and the simplest manner, and at the same time prepare the patient for other appropriate remedial means, we shall not hesitate to have recourse to the cold-bath, either by immersion or affusion. It is impossible for any person who has not actually experienced the efficacy of this remedy on himself, to realize the delightful transition from suffering to ease, from the raging heat, and unquenchable thirst, to the coolness and calmness of sensations which follow the use of the cold-bath in the hot stage of intermittent fever. It cools, soothes, and quiets, by effectually reducing the excessive capillary excitement in all the membranes and sensitive expansions."

The plan of treating the cold stage by warm drinks, the warm-bath, vapor-bath, etc., if well managed, *and not made too heating*, I regard a good one. Hot-baths here, as elsewhere, have no place in scientific hydropathic practice. I am not at present, however, so much in favor of the warming plan as the one before mentioned. The two may be combined, if that is desirable. A warm-water vomit is certainly excellent when there is nausea and foul stomach. Clysters are also useful.

The *diet* is a matter of great importance in ague. An improper meal is sufficient, in many cases, to bring on an attack even after the paroxysms have been checked. I have known patients who had just recovered from ague, and were going about comparatively well, by eating a hearty supper of warm biscuit and butter, and the like articles, to be attacked again the next day as bad as ever. The diet should be spare and light for some time after the disease has disappeared, as well as while the cure is going on. It would be very unwise to take a full meal within two or three hours before a paroxysm is to set in, because digestion can not go on when there is fever; besides, undigested food is necessarily a source of irritation in the stomach, and always renders the paroxysm much worse than it otherwise would be. The *hunger-cure* in ague is a most valuable means. Ague is a disease of impurity, emphatically so. Now, abstaining from food is one of the most speedy and efficacious of all known means of *purifying* the system. The law of nature is, that when food is withheld from it, the foul, diseased, and effete, or worn-out matters, are the first to be thrown off; the blood becomes purer, the skin clearer, and of a more healthy color; pains are quelled, or rendered less, and bodily comfort is augmented in every respect. If a person should live on two or three ounces of food one day, and take nothing but water the next, and follow this up for a week or two, as the case might require, eating nothing whatever, except on alternate days, he would find it an invaluable method. His "ague fits" could not possibly last long under such a regimen; and, what may appear singular, the strength, under such circumstances, is maintained on an exceedingly small amount of nutriment, especially if the water processes are practiced at the same time.

Those who are endeavoring to cure an ague, should be exceedingly careful in every thing. It is a bad state of the system, and a little imprudence committed, while a cure is going on, may make a good deal of trouble. Besides being most strenuously careful in diet, fatigue, both bodily and mental, should be avoided. Especially should wet and cold be shunned. So, also, night air, particularly if the pa-

tient is obliged to remain in the malarious district. "Early to bed" is a good rule for him, and so also "early to rise," but not to go out while the air is damp, and the dews yet upon the ground.

From what has been said, it will be inferred that I place great reliance upon having the patient leave the locality where the disease has been taken. We can easily enough break up the paroxysms of ague with water; but as to how long it will keep off, if the malarious poison is breathed constantly, is a matter not so easy to decide upon.\*

#### REMITTENT FEVER—BILIOUS FEVER—BILIOUS REMITTENT FEVER.

The term *remittent*, as applied to fever, signifies that the attack has exacerbations, or periods of increase of febrile symptoms; but these do not any time of the day wholly leave the system, as in an *intermittent*. In a *remittent*, there is only a *remission* of fever; in an *intermittent*, there is *intermission*, *i. e.*, the fever wholly leaves the individual for a day, less or more, and then returns again.

Remittent fever has sometimes received names according to the locality in which it prevails. Thus we read of *African fever*, *Mediterranean*, *Walcheren fever*, *Southern fever*, *lake fever*, *marsh fever*, etc.

Remittent fever occurs only where marsh miasmata is generated. It is seldom known among mountains, in barren regions, or upon sandy plains. Many parts of New England, New York, and the Canadas are wholly free from it. Remittents are seen most where the soil is the most damp and fertile, and where the temperature is the most elevated. For obvious reasons it prevails principally during the hot season, particularly the latter part, although it may occur in the winter, or at

\* The rules Priessnitz gave me at Graefenberg for the treatment of ague are as follows:

1. In the first or cold stage, use the rubbing wet-sheet perseveringly until the paroxysm is quelled; or use the hip or sitz bath, with much rubbing of the abdomen and the whole surface with the wet hand; or the half-bath, long continued, the water being somewhat tepid, may be had recourse to.

2. In the hot stage, the packing-sheet often changed, so as to reduce sufficiently the abnormal heat, the cold half-bath, or affusions of water; in short, the general means of reducing feverishness from whatever cause.

3. In the sweating stage employ the tepid half-bath only. This may be well enough administered in a common wash-tub, the patient sitting with the feet outside of the vessel.

The tendency of this treatment in the first stage is to promote circulation toward the surface, thus relieving the internal organs of the abdomen, which are always congested, or, in other words, have too much blood in this stage. It also tends to either mitigate or wholly prevent the *second* and *third* stages.

The treatment in the second stage reduces the fever, and thus saves the patient's strength. It also mitigates or wholly prevents the *third* stage.

In the third stage, the treatment acts to prevent the debilitating sweats, thus supporting the strength, and thereby giving the individual the best opportunity for speedy recovery.

any season of the year. Bilious fever may then be called the *summer* fever of our country, while *typhoid* and *typhus* fevers belong more especially to winter.

This disease is supposed to be essentially the same as intermittent. It has the same cause or causes, and the two not unfrequently so nearly resemble each other that it is not by any means easy to determine to which the case belongs.

In many cases of remittent the febrile paroxysms occur at stated intervals; and there is the cold, hot, and sweating stage, very much after the manner of an intermittent. In other cases, however, these symptoms are less marked; in others, again, the exacerbations occur irregularly; while in a few, apparently clear cases of bilious fever, the paroxysms are scarcely discoverable at all, the fever taking on a *continued* form. It is to be observed, also, that the same case may assume several or all of these characters; the attack may begin in one way and end in another; and the remittent may also begin or end as an intermittent. Hence it will be inferred, that this disease, like all others, seldom, if ever, presents any two cases that are in all respects alike.

Remittent fever has also the same types as intermittent. It may be *quotidian*, i. e., the paroxysm occurring daily—which is the most common form; or it may be *tertian*, *quartan*, etc. Sometimes, also, two exacerbations may occur in one day, and but one the next, and so on. In short, it varies as much in type as intermittents are observed to do.

Remittent also varies in grade. It may be *high* or *low*; *sthenic*, as we say, when the system is full of blood and vigor; *asthenic*, when the opposite state of things obtains. It may also be of all conceivable degrees of violence, in some cases amounting merely to an *ephemera*; in others constituting a most violent and destructive disease.

*Duration.*—The average duration of bilious fever under the ordinary modes of treatment has been stated to be about two weeks. It may end as early as the fourth or fifth day, and often does from the ninth to the eleventh day. In some cases it is protracted to four, five, or more weeks. In some instances it has destroyed life as early as the second or third day, although such cases are not common. That this kind of fever, as well as all others, may be materially shortened in duration and lessened in severity by appropriate treatment, there can be no possible doubt.

That form of bilious fever known in some parts as the *congestive*, is always a dangerous disease. Congestive fever is common bilious fever more intensified in its character. The attack may commence as congestive, or a common case may at any time pass into that



form. But this species of malarious disease will be fully considered in another place.

It has been a question as to how long it is necessary for the miasmatic matter to accumulate in the system before it can show itself in the form of fever. This appears to vary a good deal; in some cases where the malaria is very abundant it would seem to act immediately, causing an attack almost as soon as it is received into the system. In other cases, weeks and even months elapse before the febrile paroxysm is experienced. In this way it may come on in the winter, several months after the exposure to the malarious influences.

*Symptoms.*—Often, but not always, the disease commences with chills. Usually there are pains in the back and extremities, and sometimes in the head. In some cases there is nausea and vomiting; oftener, probably, there is simple sickness at the stomach without the latter symptom. The face in the beginning is pale and the lips purple. There is a general feeling of uneasiness and discomfort. The complexion is apt to be more or less sallow. These preliminary symptoms usually last a day or two before the accession of fever fairly sets in. Sometimes, however, the attack commences suddenly with a considerable chill, which is soon followed by fever. After the febrile paroxysm has commenced, the pulse rises to 110, 120, or 130 in a minute, and is rather full, but not hard; the face is flushed, and headache, more or less severe, is experienced. The patient may be delirious or otherwise; if he is able, he speaks of being very weak. It need hardly be added, that as intermittent fever varies indefinitely in its severity, so, also, in its symptoms.

In ordinary treatment, as the disease progresses, nausea and vomiting are among its most frequent attendants. The matter ejected from the stomach is of a bitter, offensive taste, and of yellowish, greenish, or brownish color. It is often almost impossible to make the stomach retain any thing whatever upon it. This symptom, however, changes as soon as we have reduced the fever sufficiently. The *bowels* are generally disordered with either too seldom or too frequent action, the discharges being highly bilious. The *urine* is scanty and of dark color, yellow, brown, or brick-colored, with a thick sediment often. In the exacerbation of the attack all of the more prominent symptoms of the fever become aggravated. These exacerbations are much more marked in some cases than in others; in some instances the attack assumes very nearly the continued form.

One of the more prominent features of this disease is the yellow appearance of the skin and white of the eye. The yellowness is not always uniform over the whole body, but often so. The yellow matter

is in some cases sufficient upon the surface to stain linen or other white articles that may be rubbed upon it. These appearances, however, do not occur in all cases.

*Treatment.*—This is to be conducted on general principles. The important object is to keep down general fever. It is also important to purify the system as fast as possible. For this purpose the wet-pack is the most useful of all known remedies. We can advantageously give three or four of these applications daily, and during the intervals have the patient almost constantly in the folded sheet. If he is able to sit up a part of the time, a large wet girdle should be employed. Frequent clysters are useful, and the patient should drink as much water as he can, without oppressing the stomach. It may be taken warm for the diluent effect, if he is at all chilly.

Under ordinary treatment, it has been found that most cases of bilious fever either begin to decline at a period somewhere from the seventh to the fifteenth day, end fatally, or take on a new character. When recovery takes place, improvement in some cases goes on gradually, but in others the disease ends abruptly by a diarrhea, copious urinary discharges, or a profuse perspiration. A gradual improvement in the appearance of the tongue is one of the most favorable symptoms. If a vesicular eruption occurs upon the lips, at the beginning of convalescence, it is to be looked upon as a good omen.

By means of water-treatment, we can shorten cases of bilious fever materially, but not so much as would be inferred from the statements made in some of the hydropathic works. In spite of all that can be done by this or any other known means, the disease sometimes goes on for a number of weeks, the patient recovering in the end apparently as favorably as in those cases which run a much shorter course. I wish not to be understood as having too little confidence in hydropathy as a means of curing this, as all other forms, but I am desirous to state the truth simply as it is; nor do I believe that *every* case of fever can be cured by water, or any thing else. On the contrary, I am well satisfied that some cases can not be cured. But in the incurable attacks even, water is to be recommended above any other remedy, because it makes death more easy.

Since writing the above paragraphs, I am happy to find several valuable authorities touching water as a remedy in this disease.

Dr. Dickson, of Charleston, South Carolina, has recommended the cold affusion in remittent fever in the following terms: "The particular indications which demand the resort to it unhesitatingly, are found in the youth and general vigor of the patient, and the heat and dryness of the surface. The local determination which it controls most prompt-

ty, is that to the brain, shown by headache, flushed face, red eye, delirium, etc., with a full, hard, bounding pulse. Seat your patient in a convenient receptacle, and pour over his head and naked body, from some elevation, a large stream of cold water; continue this until he is pale, or his pulse loses its fullness, or his skin becomes corrugated and he shivers. On being dried and replaced in bed, a genial sense of comfort and refreshment will attest the benefit derived from the process, which may be repeated whenever the symptoms are renewed, which it is so well adapted to remove." Dr. Dickson also speaks in high terms of commendation of the "head-douche," in cases "where the cerebral determination is inordinately violent, dangerous, and tenacious." "Many," he observes, "who dislike all the other modes of using cold water, entreat for this operation, as the most soothing of possible indulgences; nor have I met with any ill consequences from allowing its most unlimited frequency of repetition." The well-versed hydropathic practitioner need not be told that in all these cases a *passive* cooling is even preferable to pouring water from a height.\*

#### CONGESTIVE FEVER.

There is one form of miasmatic fever which, in some parts of our country, is called *congestive* fever. This name is not given to all cases of dangerous intermittent or remittent fever, but to a particular form of the disease, which also is usually attended with symptoms of more or less danger. Some writers have objected to any such distinction of a disease which is evidently miasmatic in its origin; but others maintain that, although congestive fever is essentially intermittent or remittent, accordingly as the case may be, yet a separate description and classification of the disease will tend to aid the young practitioner in gaining a knowledge of its true nature, and the proper treatment to be employed in curing it.

This form of miasmatic fever may be either intermittent, remittent,

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\* Concerning the treatment of remittent fever, Dr. Dunglison remarks, "Every rational practitioner of the present day admits, that of all internal refrigerants, cold water—ice cold—is the most effectual; yet occasionally, among the uninformed, we meet with apprehensions on this score—the relics of ancient belief—and with those who are afraid to employ cold as freely as it is advised by the practitioner. The dread of very cold fluids after calomel has been administered is especially entertained. This notion appears to have arisen from the fact, that when the system has been in the very impressible state, which mercury—given to such an extent as to occasion its peculiar effects—induces, irregular actions have been observed to follow exposure to cold; and hence it has been inferred that a similar result might ensue on the application of a cold fluid to the lining membrane of the stomach, after even a single dose of a mercurial has been taken. All experience, however, shows that the two agents are by no means incompatible; and did any doubt exist on the subject, and should a question arise as to whether the mercury or the ice-water should be dispensed with, we should not hesitate, in the large majority of cases, to adhere to the latter."

or continued. It is more commonly, however, one of the former; if the fever is of two or three days' duration, it may be said to be of the continued form; but in the large majority of cases it takes on the paroxysmal form. Its *type* is more commonly *tertian*; although it is not unfrequently *quotidian*.

*Symptoms.*—Congestive fever comes on usually like an ordinary attack of miasmatic fever, and frequently it is not until two or three or more paroxysms have taken place that the pernicious symptoms present themselves. Sometimes, however, "the first symptoms are chilliness, severe pains in the back, limbs, and head, frequency and irregularity of pulse, flashes of heat alternating with slight perspirations, as if a remittent were endeavoring to form itself; when gradually, or suddenly, as the case may be, an alarming change becomes obvious, and the patient is seen to be in the greatest danger." So, too, after an intermittent or remittent has gone on for several days, it may suddenly, especially if badly treated, take on the congestive or pernicious form.

Congestive fever is evidently attended with a great prostration of the vital powers. When the disease is fully formed, and exists primarily in the organic functions, symptoms like the following present themselves, not all of them, but more or less in a given case. "The face, hands, and feet are of a livid paleness; the features shrunk and impassive, or singularly expressive of an amazement or alarm which the patient does not feel; the eyes often sunken in their sockets, though still clear and even bright; the skin contracted, and the fingers shriveled as if long soaked, like those of a washerwoman, in soap and water; the extremities, and sometimes even the trunk, chillingly cold, though not sensibly so to the patient; the surface either partially moistened with a clammy perspiration, standing sometimes in large isolated drops, or universally bathed in a profuse cold sweat. In some cases, the surface of the chest and abdomen is morbidly hot, while the extremities are cold."

The pulse is variable in this disease, though generally frequent, amounting to 120 or 130, and in some cases over 160 in the minute, and usually weak; in some cases it becomes intermittent, which is to be considered an unfavorable though not necessarily a fatal omen. Sometimes the pulse is nearly or quite absent at the wrist, while at the carotids it is plainly perceptible, and the action of the heart "loud, strong, and tumultuous;" but in other cases the heart's action is found to be very feeble.

The respiration varies in several respects from a state of health. Sometimes it is "irregular, hurried, and panting." As in other cases where the vital powers have been suddenly depressed in a great de-

gree, the patient complains often of great difficulty of breathing, craving to be fanned, and longing for the windows and doors to be opened, that he may have as much as possible of fresh air.

The appearance of the tongue is also quite variable. In some cases it is but little altered from its natural state; in some it is dry; in others moist, pale, and cold.

One of the most striking among the symptoms of this disease, is the feeling of burning, internal heat, notwithstanding the coldness of the extremities and surface, attended with a most violent and apparently unquenchable thirst. "Oh, that I could lie in the river!" "Oh, that I could have a stream of cold water to flow through me!" patients have often exclaimed, when suffering from this disease. At the same time the water he drinks is almost certain to be rejected, so that vomiting is one of the more prominent and troublesome of the symptoms. Not only the articles swallowed are thrown off, but bilious, muco-serous, and sometimes bloody matters are vomited. Sometimes, also, as in Asiatic cholera, there is much retching and attempt at throwing up, with little or no discharge.

The state of the bowels is variable. Oftener, however, they are loose, rather than otherwise. In some cases the discharges are very frequent, amounting to several in a single hour. In such cases, the dejections are watery, tinged with blood, often having the appearance of the washings of flesh. Sometimes the blood is quite pale, and of a bright color; at other times it is dark-colored, and clotted or otherwise. If the discharges change to a bilious character in this disease, the circumstance is to be looked upon as a favorable one, the same as in cholera.

The nervous system frequently partakes of the general disturbance that is going on in the vital domain. There is great restlessness and uneasiness, the patient feeling it impossible to get into any position in which he can remain either quiet or comfortable, and he will sometimes rise and walk to the window or the door, if allowed, even after the pulse has become extinct at the wrist, and death having, as it were, already seized upon the vital organs.

The *course* of the symptoms in congestive fever, like the symptoms themselves, is very various. After the state of prostration above described has continued for a time, longer or shorter, according to the case, there is an effort on the part of nature to produce reaction, the same as happens in cholera. This stage of prostration may continue only a few hours, or it may last one, two, three, or more days. If reaction does not occur, death must of course be the result. "The coldness increases, invading sometimes the whole body, except a small portion near

the heart ; the respiration becomes slower and more sighing, with lengthening intervals between the acts ; the pulse gradually sinks, and often quite ceases in the extremities for several hours before death ; the cerebral functions at last fail ; the countenance assumes the Hippocratic expression ; and the patient usually dies tranquilly, as if falling into a sleep."

In the greater number of cases, however, symptoms of reaction begin to show themselves in the course of a few hours. The pulse becomes more natural, fuller, and stronger, and the skin warmer, so that a sort of febrile exacerbation may be said to take place. But this is not at all in proportion to the degree of the preceding prostration. This reaction, which does in fact consist in an improvement of the unfavorable symptoms generally, is in many cases slow, and accomplished apparently only by repeated efforts on the part of nature.

If the disease is not arrested either by the natural efforts of the system or by artificial means, the same train of symptoms as before described set in, either the following day or the day after, and usually with increased violence. In some cases, however, the force of nature is so great, that each succeeding attack becomes milder, the disease gradually wearing itself out. In other cases, it may run on into a continued or a typhus fever, at last wearing the system out and ending in death. Owing to peculiarities of constitution, and to the different modes of treatment adopted, the course of the disease assumes a great variety of aspects and forms.

*Treatment.*—Congestive fever, which in many respects resembles Asiatic cholera, has been treated in perhaps as many various and contradictory ways. And is it for a moment to be doubted that multitudes have been sacrificed by the heterogeneous and destructive methods that have for so long a time been in vogue ? "Not long since," says Dr. Wood, "under the notion that congestion was the evil to be encountered, copious bleeding and large doses of calomel were the remedies most relied on by many practitioners. Experience, however, has proved the frequent inefficacy and even danger of this practice ; and the profession generally are rapidly abandoning it. In some of the cerebral cases, with a full and tolerably strong pulse, it is proper to abstract blood from the arm, and also to take it locally from the temples ; but in all others the remedy is much worse than useless. While the whole organic actions of the system are prostrate under the vast nervous depression, and life is running out with the serous discharges from the alimentary canal, to open another outlet in the arm seems as contrary to sound pathological principles as it is opposed by multiplied experience. Exactly the opposite course should be pursued. Efforts

should be made to rouse the nervous system from its lethargy, and to restore the organic actions; while further exhaustion is prevented by checking the profuse exhalation from the inner and outer surfaces of the body."

Here, then, we have it. Dr. Wood is as good authority as this or any other country affords in the allopathic ranks, and according to his own assertions as well as reasoning, multitudes have been injured, to which we may add, *killed outright*, by the barbarous modes of practice that have been followed. How incomparably better is it to use a remedy which, even if it can not save life, can not, unless egregiously abused, harm the system! A practitioner of water, though he may mistake the true pathological state of the case, must yet be a most consummate blunderhead to injure his patient. This, then, is a great recommendation of water, while at the same time we see the danger of tampering, in such a disease, with the lancet, calomel, opium, and other poisonous drugs.

Congestive fever, like all other diseases, must be treated according to the nature and severity of the case. In many instances the patient would get along well enough without any treatment other than good nursing. In other cases much suffering may be saved the patient, and in still others, life may be preserved by artificial means.

The great thing to be done in severe cases of this disease—and it is these that demand more particular consideration—is *to arouse the prostrated vital energies as quickly as possible*. All practitioners agree as to this principle; but how strange it is to find writers of great eminence recommending artificial heat as one of the first and most important of remedial means in such a case! Warmth, to be sure, is a very good thing in its place; but as for *hot* applications, they only tend to disturb the vital actions, and, consequently, in the end do harm. The terms, heat and cold, I use here in the same sense as in the case of baths. If we do not go above the natural warmth of the body we do no violence; but if we make applications of a higher temperature than 98° Fahr., we in the end do harm, and generally at the time also.

Coldness and friction constitute the great remedy in all cases of severe prostration. In another place I have spoken of the Persian treatment of cholera, which consists of a great deal of friction with the hands wet in cold water—for the water is of a moderate temperature in that country—and water is also freely poured upon the patient. This is in effect the half or shallow bath of Priessnitz, which can be well enough imitated by using a good-sized wash-tub, there being two or more persons to aid in the operations. When the patient is even too weak to be held up, he can be laid upon a couch, cot, or straw

bed, and the frictions may thus be practiced, with wet-sheets placed upon and about him, and frequently renewed. At the same time the freest circulation of air should be allowed in the room, and if the weather is not decidedly inclement, it would be of great benefit to have the patient in the open air. Fresh air and coolness, generally, are what he most desires, and his feelings should be gratified to the fullest extent while the fever is upon him. Nor is it scarcely within the range of possibility to give a patient a cold under such circumstances—a fact which it is of the greatest importance to remember. These frictions, besides, are to be continued as frequently and as long as may be necessary to produce the desired result. A great advantage of the treatment is, that if it is not possible to cure the patient, which I think can seldom happen if the case is taken in season—it renders the sufferings much less than they would otherwise be. The water need never be so cold as to do much violence to the patient's feelings. From 60° to 70° would be safe in the generality of cases.

One of the most remarkable effects of water is its power, when applied in this way, of arresting the vomiting and purging that attend such cases. This it does by its effect, in connection with the friction, of promoting the circulation outward, and thus relieving the oppressed internal organs. Besides, also, a considerable portion of the water is absorbed by the system, especially if the process is prolonged somewhat.

The patient should at all times be allowed what drink he craves; and, singular as it may appear, warm water is found to quell the thirst and vomiting better than cold. The reason of this is that warm water is more readily absorbed than cold, is not so liable to be rejected by the stomach, and passes more quickly into the circulation, which is a desirable object, since the tendency is for the serum of the blood to pass off at the bowels to a dangerous extent. The same rule applies to clysters as to drinking, and which should be used with the utmost freedom, according to the exigencies of the case.

The cold sitting-bath should not be neglected in these cases, especially after the violence of the disease has somewhat passed off. The wet girdle should also be used all, or nearly all of the time, and a semi-daily pack, followed by the rubbing wet-sheet, or the shallow-bath would aid the patient much in his recovery.

In treating these cases, when the reaction becomes established, we are, all along, to treat the febrile symptoms according to their degree or violence. The reader will understand that in this disease, when severe, as in cholera, reaction, which is the only road to cure, consists in an increase of circulation and calorific power. When such reac-



tion fortunately takes place, all we have to do is, to see that it does not become too violent.

As in all other cases of severe disease, the greatest caution is necessary in diet. Many a patient in congestive fever, as in cholera, has been killed by following out the foolish whims of those who seem to look upon starvation as the only means of death, and plying the sufferer well with food as the only means of cure in such cases. Now, it should be forever remembered, that when a patient's vital powers have been prostrated to the very brink of dissolution, it requires time before his stomach can digest strong food, or much of it. Gruels, the lightest broths, if such are used, farinaceous articles, in small quantity, and the judicious use of fruits, are the proper dietetic means.

In conclusion, I remark, that when Water-Cure shall have been made to take its proper place in medical practice, it will be found that its virtues are nowhere more conspicuous than in the treatment of these dreadful forms of fever that occur in so many parts of our country. At present, however, the timid will not dare to use water in the way it should be used; and if a patient should happen to die under its effects, there are always enough ready to raise the bugbear cry of DEATH BY COLD WATER. So it is, and for a long time it must be in the new practice. We treat a patient the best he can be treated, and make his death as easy as possible, and yet are accused of killing him. And ignorant doctors, prejudiced and unfair as they are foolish, are too often found aiding in these misrepresentations. But these things shall not always be.\*

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\* I am glad, however, to find that water is getting into more note in some quarters as a remedy in this disease. Dr. Wood, in his late work on the Practice of Medicine, speaking of congestive fever, observes that some practitioners in the West and Southwest habitually employ cold affusion in treating it. Dr. Gustin, of Natchez, informed Dr. Wood that he had once immersed a patient, while in the lowest stage of a pernicious paroxysm, with a cold skin, and nearly or quite pulseless, but complaining bitterly of the burning heat which was consuming him, in a bath of cold water, with the happiest effects. The remedy was agreeable to the patient, and he was allowed to remain until he began to feel somewhat chilly, when he was removed, wiped dry, and placed in bed. Reaction came on delightfully, and his life was saved. Dr. Elchmond, an old and experienced practitioner of Indianapolis, according to Dr. Wood, is in the habit of causing his patients in this disease to lie naked at full length, and of pouring cold water, from a pitcher, upon him, from head to foot, until he begins to shiver, after which he is wrapped in blankets and plied with stimulants diligently, internally and externally. Dr. Barbour, of St. Louis, we are also informed by Dr. Wood, esteems the affusion of cold water above all other means in the treatment of this disease.

There can be no doubt of the great benefit of the cold affusion or immersion in all forms of fever, in which cold water is agreeable to the patient's sensations. Nor is it necessary that the surface should actually be hot when the remedy is applied. In cholera, we know, that when the skin is cold and clammy, that the cold-bath often gives the greatest relief. But in all such cases, the patient feels as if a perpetual fire were raging within him. It is

## MILK SICKNESS.

In many of the Western parts of the United States a disease prevails often, called *milk sickness*, *trembles*, or *sick stomach*, respecting the nature of which much has been said. Some deny that it is a distinct disease, holding that it is only a form of gastro-enteritis; while others maintain that it is simply a modification of miasmatic fever of a congestive type, accompanied with great irritability of the stomach.

The disease is evidently caused by eating the flesh or milk of animals that are infected with it; and it is affirmed on good authority, that butter and cheese manufactured from the milk of the diseased animal are the most concentrated forms of the poison, although they possess no appearance, smell, or taste which distinguish them from the healthy articles.\*

Dr. Drake is inclined to criticise the profession in regard to the importance of this complaint. "The mortality from it," he observes, "is very small compared with that from many other maladies, about the causes of which we make few inquiries. There can be no doubt that more persons annually die in the West from autumnal fever than have died of milk sickness, from the commencement of its settlement. Even in the districts where the disease is endemic, it does not destroy as many as pleurisy or cholera morbus."

*Treatment.*—Milk sickness is doubtless a form of miasmatic fever taken from the animals that suffer from the disease. The malarious poison is probably rendered less virulent by passing through the body

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precisely the same in bad cases of congestive fever, and the same principle of treatment holds good.

But the prolonged shallow-bath, the water being cold, it is to be remarked, is a far better and more efficient method than either the affusion or immersion. Friction with the hand wet in cold water exerts a powerful influence in rousing to action the depressed vital energies in all these cases. No other known means is any thing like so powerful as this when rightly practiced. In some cases of great prostration it may be necessary to continue the process for hours, with little or no abatement or cessation. So long as the thirst and burning heat remain, the practice can not be overdone. Nor should the patient be given over to die so long as life remains.

\* According to Dr. Yarkin, the following are the most remarkable among the symptoms of this disorder: "After the use of milk, butter, or recently slaughtered meat, the individual is attacked with a distressing sense of burning in the epigastrium, followed by vomiting, with insatiable thirst. These symptoms are uniformly pathognomonic, and continue throughout the complaint. The bowels are constipated; the pulse at first natural, becoming in the sequel small, tense, vibrating, and often irregular; epigastrium tender to the touch; body hot; extremities cold; the patient's breath has a peculiar odor, which is indescribable. The symptoms of the chronic form of the complaint are, a slight burning in the stomach, continued and distressing; occasional vomiting; general debility; costive bowels; sullen countenance; intellectual dullness.

of the cow, the same as occurs in cow-pox. It should be treated on general principles.

#### YELLOW FEVER.

Yellow fever, called, also, in some parts, *typhus of the West*, *vomito negro*, *vomito prieto*, *Bulam fever*, *Barcelona fever*, etc., is a disease of hot weather and warm climates. An average temperature of from 79° to 80° Fahr. is supposed to be necessary for its production. It can, therefore, happen only within limited districts and at certain seasons of the year. Two or three months of hot weather appear to be necessary to produce it. Yellow fever can rarely happen north of 40° of latitude, because the summers, although very hot at times, are not sufficiently long to give rise to it. It is a remarkable and instructive fact, that the disease is almost wholly confined to towns and other situations where human beings congregate, as in forts, ships, and the like. It is singular, also, that yellow fever should be for the most part confined to places upon the sea-coast and to large streams that empty into the ocean. It is exceedingly common in the sea-port towns of inter-tropical America, and not unfrequent in those of Southwestern Europe; but it is almost unknown in Asia, Eastern Africa, and South-eastern Europe. According to Dr. Wood, we never hear of it in Canton, Calcutta, Alexandria, Smyrna, or Constantinople, while every one is familiar with its ravages in Vera Cruz, Havana, New Orleans, Gibraltar, and Barcelona. It is singular that it should thus attack the inhabitants of one city yearly, and never appear in another where the circumstances for its production seem to be equally favorable. The relative frequency of its occurrence in different situations appears to be owing in great part to the duration and intensity of the hot season. Thus in many of the cities of the West Indies and of the Mexican coast, we are told that yellow fever is scarcely ever absent during the hottest part of the year, while in New Orleans, Mobile, and Charleston, though exemption can never be fully counted on, yet the disease does not prevail every summer; and in Baltimore, Philadelphia, New York, and Boston it makes its appearance only at distant intervals.

*Symptoms.*—In some cases the attack comes on suddenly, and almost without warning of any kind. It occurs frequently in the night, but may attack the system at any time. The onset is sometimes preceded by the ordinary symptoms of fever, such as chilliness, shivering followed by heat. Among the more prominent symptoms are pain and heat in the head, back, and limbs. Nausea, and other gastric troubles, in some cases are present from the beginning; in others, and

a majority of cases, perhaps, the stomach does not become much affected until after twelve or twenty-four hours from the commencement of the attack. The vomiting often becomes very violent, attended with much retching, and distress at the epigastrium. The thirst is very great, and there is, perhaps, no fever in which cold drinks and ice, held in the mouth, are more agreeable to the patient. Flatulency is often a troublesome symptom. The bowels are likewise generally costive, and in some cases obstinately so; the discharges, when obtained, are highly offensive. The headache is often exceedingly violent; and the patient suffers in no respect more than from the nervous symptoms. Delirium sometimes occurs and in various degrees, from the slightest to the most furious. There is also stupor, more or less, in many cases.

Yellow fever runs its course in a short time. From a few hours to three or four days is the usual duration of the disease, and from beginning to end there is little or no remission of the symptoms. The more violent the attack the shorter the duration. "Having run its course," observes Dr. Wood, "the fever subsides, and a great amelioration of the disease is experienced. The skin becomes cooler and softer, the pulse nearly or quite natural, the respiration calm, and the stomach comparatively quiet. The headache and the excruciating pains in the back, if not previously relieved, disappear; and the patient, freed from the distress of body and mind, becomes comparatively cheerful and hopeful, and not unfrequently confident of recovery. It is not unusual to find him sitting up, either in or out of bed, and to be told by him that he is quite well. But this is a delusive calm. Sometimes, indeed, convalescence dates from the subsidence of the fever, in mild cases; but generally the great struggle is yet to come. The apparent amelioration is not in any respect comparable to the remission or intermission of miasmatic fever. The disease still continues unabated. It is only that the febrile phenomena have disappeared under the failing powers of the system. The struggle against the noxious influence has ceased for a time. The continuance of the fever would be a favorable rather than unfavorable sign; as it would evince a greater ability of the system to cope with its ferocious adversary."

In this apparent calm of the disease, if pressure is made upon the epigastrium, the tenderness is found to be even greater than before. The heat and flush of the face are gone; but in its place there is apt to be a yellowish or orange color spreading itself more upon the face and upper parts of the body, but gradually upon the whole surface. The urine is high-colored and of a yellowish tinge. The pulse sometimes sinks as low as 47 in the minute. This period of abatement

may last six, twelve, or twenty-four hours, after which the patient grows either better or worse.

In some cases, in a large number, we may say, if the system has not been badly injured by drugging, bleeding, etc., the period of abatement will be found to be succeeded by a febrile reaction of various grades of violence, but which is to be looked upon as salutary efforts of nature. The tendency of this reaction is evidently toward health, although nature is not always able to succeed in her operations. The patient may die from exhaustion, or he may pass into a typhoid state, from which he may recover after two or three weeks or more.

But in case this reaction does not take place, the symptoms of debility and prostration generally become more and more persistent. "The pulse is quick, irregular, and feeble; the skin is yellow, orange, or of a bronzed appearance; the blood appears often to be nearly stagnant in the capillaries, so that when removed by pressure with the finger from a portion of the skin, the color returns very slowly; the dependent and extreme parts of the body, as the fingers, toes, scrotum, and back, become of a dark purplish hue. The tongue is now often brown and dryish in the center, or smooth, red, and chapped; and sordes occasionally collect about the gums and teeth. The stomach resumes all its former irritability; every thing swallowed is thrown up again, and a new matter is ejected, consisting of brown or blackish flakes or particles, diffused in a colorless liquid, which may be at first slightly tinged by them, but ultimately becomes black and opaque. In very malignant cases, the condition of system above described may come on even so early as the first day; and occasionally the extreme capillary prostration, with the purplish skin, and a pulse scarcely perceptible at the wrist ensues, while the heart and large vessels are still beating tumultuously. The urine, often scanty and high colored during the fever, is now sometimes nearly natural, sometimes almost or quite suppressed, and occasionally, though rarely, retained. At this stage of the disease hemorrhage occasionally takes place from various parts of the body, especially from the mucous membranes. Blood oozes from the gums, the fissures of the tongue, the fauces, and the nostrils. It is sometimes also vomited, or discharged by stool, or with the urine, and the petechiæ and vibices arising from its extravasation appear upon the skin. The irritability and extreme distress of the febrile stage are now replaced by an extraordinary apathy; and the countenance expresses a quiet resignation or gloomy indifference. The pulse at length almost ceases; the respiration becomes slow, sighing, and occasionally interrupted by hiccough; the skin assumes a cold and clammy feel; the bowels often give way and discharge quantities of

black matter, similar to that ejected by the stomach; low delirium sets in; an oppressive odor sometimes exhales from the whole body; the eyes become sunken, and the countenance collapsed, and death takes place, often quietly, but sometimes in the midst of convulsions. Black vomit, yellowness of the skin, and hemorrhage have been mentioned as attendants upon this last stage, but patients often die without them."

*Prognosis.*—This disease, like all others of a severe character, varies a good deal in different cases and in different localities. In an epidemic form, yellow fever is one of the most destructive of all febrile diseases. Some have reckoned the general average of deaths from yellow fever, prevailing epidemically, at about one third of all attacked. According to Dr. Dickson, of Charleston, South Carolina, a practitioner of great experience in this disease, the proportion of fatal cases in that city is not more than from one fifth to one sixth. "The attack," says this author, "is apt to be violent, and its progress hasty, in the sanguineous and plethoric. For the intemperate, there is almost no hope. National habits and modes of life have a decided influence. The Irish, Germans, and Scotch afford the worst cases; Spaniards, Italians, and Frenchmen are very apt to recover. Middling stand the Englishman, the northerner, and the mountaineer, or inhabitant of our interior country. Generally speaking, the more recently a stranger has come here, the more severe his attack. Among the young children assailed, the ravages of this pestilence are very great." According to all observers, the new-comers in a city where yellow fever prevails, are more liable to be attacked by it, and more apt to sink under its effects.

*Treatment.*—If it were not for taking up too much space, it would prove a sad as well as instructive lesson to the reader if I should devote some pages in stating the different modes of treatment that have been adopted in this disease, and the contrariety of opinions that have existed and still do exist among medical men as to some of the most powerful and dangerous of the old-school measures. While, for example, some recommend bleeding in the strongest terms, others condemn it. Thus Dr. Mott, of the South, remarks, "He who is ignorant of the various types in which this Protean disease appears in different years and in different latitudes, must either not have read, or read to little purpose, the history of yellow fever. In one epidemic we are told that the lancet is the sheet anchor, in another it is death. The difference occurs, to a limited extent, in Mobile, but the *rule* is—beware of the lancet!" So also Dr. Dickson, who is of opinion that the results of experience and observation are unfavorable to the general or frequent

resort to bloodletting, and who has had occasion in his extensive practice to bleed but four patients, two of whom died, "prefers to substitute the cold-bath, which," he says, "if I do not deceive myself, is equally effectual in subduing morbid excitement, and controlling irritation without any positive expenditure of, or subtraction from, the vital forces; and I have never seen any unpleasant consequences arise from it."

The celebrated Dr. Rush, speaking of the means used in his practice in the epidemic yellow fever that raged so fearfully in the city of Philadelphia in the year 1793, gives the following testimony concerning the effects of water:

"COLD WATER was a most agreeable and powerful remedy in this disorder. I directed it to be applied by means of napkins to the head, and to be injected into the bowels by way of clyster. It gave the same ease to both, when in pain, which opium gives to pain from other causes. I likewise advised the washing of the face and hands, and sometimes the feet with cold water, and always with advantage. It was by suffering the body to lie for some time in a bed of cold water, that the inhabitants of the island of Massuah cured the most violent bilious fevers. When applied in this way, it *gradually* abstracts the heat from the body, and thereby lessens the action of the system. It differs as much in its effects upon the body from the cold-bath, as rest in a cold room differs from exercise in the cold open air.

"I was first led to the partial application of cold water to the body, in fevers of too much force in the arterial system, by observing its good effects in active hemorrhages, and by recollecting the effects of a partial application of warm water to the feet, in fevers of an opposite character. Cold water, when applied to the feet, as certainly reduces the pulse in force and frequency, as warm water applied in the same way produces contrary effects upon it. In an experiment which was made at my request by one of my pupils, by placing his feet in cold pump-water for a few minutes, the pulse was reduced twenty-four strokes in a minute, and became so weak as hardly to be perceptible."

Had this great and good man—so great and good that the profession are now uniformly willing to designate him as "Father Rush"—a man who kept always in his mind what he termed "the present imperfect state of our knowledge in medicine," lived at this day, in which the water-treatment is so much better understood, he would without doubt have adopted it to the fullest extent. If ever there was a sincere lover of truth, Dr. Benjamin Rush was that man; and great ability, combined with his honesty of purpose, would have led him to depend

mainly, if not altogether, on the hydropathic regimen in that terrible epidemic, the yellow fever.\*

The treatment of yellow fever by water is a short story to one who is thoroughly acquainted with the method. A great deal that is said in this volume under the head of "Treatment of Typhus" is applicable in this disease. But yellow fever, it must be remembered, is a most rapid disease in most cases. The treatment should therefore be managed accordingly. The error of most practitioners would be that of doing too little. In a disease that is so painful, pervading, and rapid in its progress, it would hardly be possible to do too much in the beginning, and before the prominent symptoms are effectually quelled. Long-continued shallow-bath frictions, affusions upon the head and body generally, clysters and tepid water-drinking with the cooling wet-pack between times, if properly managed, make quick work in subduing all pains and uneasiness, and consequently give the patient the best possible chance. Bleeding is a hazardous mode at best, and as to waiting for the action of calomel, it is a most slow and unsatisfactory method, saying nothing of the dangers of the practice.

Water-treatment, or what may perhaps more appropriately be denominated a correct hygienic course of living, is capable of being made highly serviceable in warding off the disease. Assuredly, in so terrible a malady as yellow fever often is, it is of the greatest importance to know how to prevent an attack, if such a thing is possible. Prevention is always better than cure, and especially so in a disease of such virulence as this. There are some remarkable facts on record in regard to the effects of vegetarian diet in enabling the body to withstand contact with the disease. Some persons who have for years been in the habit of subsisting on the vegetable productions of the earth, bathing daily, and observing carefully hygienic rules generally, have gone

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\* Dr. Rush, in speaking of the effects of cool, fresh air in this same epidemic visitation, makes the following remarks: "The good effects of it (referring to cool fresh air) were obvious in almost every case in which it was applied. It was equally proper whether the arterial system was depressed, or whether it discovered in the pulse a high degree of morbid excitement. Dr. Griffith furnished a remarkable instance of the influence of cool air on the fever. Upon my visiting him on the morning of the 8th of October, I found his pulse so full and tense as to indicate bleeding; but after sitting a few minutes by his bedside, I perceived that the windows of his room had been shut in the night by his nurse, on account of the coldness of the night air. I desired that they might be opened. In ten minutes afterward the doctor's pulse became so much slower and weaker, that I advised the postponement of the bleeding, and recommended a purge instead of it."

Any person of ordinary mental capacity can easily, if he have the opportunity, verify by experiment the truth of Dr. Rush's remarks, concerning the effect of cool fresh air in high fever. The same principle holds good in all inflammatory diseases. Even allowing cold fresh air to blow freely over the naked body of patients in high heat of the surface has been found a highly salutary and efficient remedy.



among yellow fever in the worst of places, nursing the sick, and handling the dead bodies of those who have died of this disease, and yet have suffered no attack. I can hardly conceive that a consistent vegetarian—one who has been so for some little time—could get an attack of yellow fever. And if by any means the thing were possible, he would have the disease in a much lighter form, and stand a far better chance of recovery than the one who should live freely and on a mixed diet, as people ordinarily do. The experience of Howard, in reference to fevers and other pestilential diseases, detailed under the head of Typhus, should be remembered in this connection.\*

## CONTINUED FEVER.

Dr. Cullen's definition of continued fever is, "fevers without intermission, and without being produced by marsh miasmata, but with remissions and exacerbations, though not always considerable, continuing; two paroxysms in each day." Dr. Good's definition is also similar, which is, "one series of increase and decrease, with a tendency to exacerbation and remission, for the most part appearing twice every twenty-four hours."

Continued fever assumes a variety of forms, and hence a corresponding variety of names have been used to designate it. Thus we hear of *typhus*, *typhoid*, *bilious*, *putrid*, *low*, *nervous*, *gastro-enteric*, *mucous*, *atonic*, and *adynamic* fever. The locality where a fever happens, also sometimes gives it a name, as jail, hospital, camp, and ship fever. Now there is certainly a use in names as applicable to a disease; but we are to regard this subdivision of continued fever as being in many respects bad, since it encourages a disposition already too prevalent of prescribing for a disease according to its name simply, while the symptoms are not sufficiently regarded. "There is *no* line of genuine distinction," says Dr. Watson, "between continued fevers that can be relied on; they run insensibly into each other, even the most dissimilar of them, and are traceable often to the same contagion."

In the present work, however, I shall consider continued fever as

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\* Dr. Dickson, of Charleston, South Carolina, who, as before remarked, has paid much attention to the subject of yellow fever, gives the following recommendations with reference to avoiding an attack. They are addressed to such as reside in town during the prevalence of the disease.

"The patient must select his lodgings in an open, airy district; sleep in a chamber well ventilated, and elevated two or three stories from the ground; remain under shelter and at rest during the heat of the day; shun all exposure to night dews or rain; and be strictly and uniformly temperate in all things. Low diet, bleeding, and cathartics are injurious, rather than salutary, as tending to reduce the system below the point of healthy action, and diminishing the power of resisting noxious agencies. A mercurial course, formerly fashionable as a preventive, is now seldom thought of. It is entirely useless, and worse."

a separate disease. There are often attacks of fever which are *continued*, but which we can not properly call typhus or typhoid, bilious, or by any of the other common names of fever. Simplicity is always desirable; but that there is in nature a distinction in fever, such as we may designate by the name of *simple continued fever*, there can be no doubt. The severer forms of continued fever will be considered under the appropriate head.

*Symptoms, Course, etc.*—This kind of fevers, as with other febrile attacks, is, in the beginning, attended with a sense of chilliness. The head is usually affected more or less, the headache being often severe. This is more apt to be felt in the forehead, and some say more frequently in the morning, when the patient first rises. But headache is not always produced at the onset of the disease.

Attacks of continued fever happen in various ways. In some cases the patient is rendered unable to pursue his usual avocation some days before the disease may be said fully to have commenced. "The expression of the patient's countenance alters; he becomes pale, languid, and abstracted. Those about him observe that he is looking very ill. He is feeble and easily tired; reluctant to make any exertion of mind or body; listless, and apprehensive often of some impending evil. He loses his appetite; his tongue becomes white, and inclined to tremble; the bowels are irregular, often confined, sometimes affected with diarrhea; his senses lose their natural delicacy. He has uneasiness or wandering pains in various parts of the body; occasionally there is some giddiness, drowsiness perhaps during the day, and unsound and unrefreshing sleep at night. In one expressive word, the patient droops."

The *skin* is usually dry and disinclined to perspiration in continued fever. As the disease passes off, not unfrequently a moist state of the surface is observed, and this circumstance usually denotes amendment in the case. If the perspiration becomes cold and clammy, when the patient is at the same time properly covered in bed, the symptom is an unfavorable one. Especially when dissolution is near at hand, the perspiration is apt to come out in this way. In some cases the perspiration becomes very offensive in fever, which, if attended with great debility, is a bad omen. But when a simple fever passes to such a state, it is more proper to call it typhoid.

*Treatment.*—The treatment of continued fever is to be conducted on general principles. We are to employ ablutions, spongings, wet bandages, clysters, wet-packs, etc., according to the symptoms of the particular case, just as we would in any other form of fever, remembering always that we should treat the case as it is, and not merely accord-

ing to a name. The particulars of such treatment are more fully entered into under the head of "Typhus and Typhoid Fevers," to which the reader is referred.

### TYPHUS AND TYPHOID FEVERS.

*Typhus* is a form of continued fever; but, on account of its importance and frequency, a separate and detailed account of its nature, symptoms, and treatment will be necessary in this place.

It has been common among medical writers to divide typhus fever into two varieties—*typhus mitior* and *typhus gravior*. The first is the "nervous fever" of most authors. It is known by "slight shiverings, heavy, vertiginous headache, great oppression, peculiar expression of anxiety, nausea, sighing, despondency, and coma or quiet delirium." The majority of cases of what are termed typhus and typhoid fever in this country come under this head.

*Typhus gravior*, called also *putrid fever*, *jail fever*, *hospital fever*, *camp fever*, *ship fever*, *spotted fever*, *petechial fever*, *malignant fever*, etc., as the name signifies, is the severer form of the disease. It is attended generally "with rigors and heat alternating; little or no perspiration, pulse tense and hard, usually quick and fluttering, pain over the forehead and vertex, delirium succeeded by stupor, signs of incipient putrescency, petechiæ, vibices, hemorrhages," etc.

In *typhus mitior*, the symptoms are of the same general character, only milder.

Within a comparatively recent date, it has been endeavored on the part of some to be shown that there are two distinct diseases bearing the characters of typhus; to one of which the term *typhoid* has been given, the other being the true typhus. In typhoid fever it is maintained that the follicles of the intestines inflame and ulcerate, and that the abdomen is, in short, the real seat of the disease. "There is, however," observes Dr. Dunglison, "great confusion among medical writers on this matter which it is not easy to disperse." Thus, a modern writer, Dr. Roussell, considers an epidemic typhus, which he has described, to have been owing to a specific cause; as, when closely observed, it was found to pursue a definite course, passing through its stages with regularity, spreading by infection, and being marked in its progress by a distinctive rash. He consequently refers it to the genuine exanthemata of authors, the characteristics of which it possesses; yet Dr. Roussell evidently describes the affection to which many recent observers would apply the term *typhoid*, and which they regard as a distinct disease. It is unfortunate, indeed, that the term *typhoid* should have been applied to any distinct form of disease, inasmuch as

it has been generally employed to indicate a condition of adynamic and cephalic disturbance, which may occur in many diseases, rather than to indicate any separate affection. The same remarks apply to the word '*typhus*,' which has been used very indefinitely by medical writers; but by the laity, the idea of a malignant contagious disease is always associated with it."

In the present work the word "*typhus*" will be used in its proper sense, and the word "*typhoid*" as an adjective simply. Typhoid signifies resembling typhus. That there is a distinct form of typhus, owing to ulceration in the intestinal glands, has not yet been clearly made out; and even if we were to admit such a distinction, it could lead to no useful practical result.

*Symptoms.*—Typhus comes on in a variety of ways, and not unfrequently in a manner similar to that of simple fever, which has been before described. There is languor, lassitude, and a feeling of general indisposition, accompanied by alternate chilliness and flushing; there is giddiness, more or less, with pain in the head, back, loins, and limbs; there is dullness and confusion of mind, and dejection of spirits, accompanied with weak and imperfect respiration; the eyes are suffused and the face flushed. If the symptoms go on badly, the mind becomes more and more affected, till at length there occurs a low, muttering delirium, from which, however, the patient may in many cases be aroused transiently by speaking to him in a loud tone of voice.

The *tongue* presents a variety of aspects in this as in other fevers. It may in one case be white, and in another absolutely black; it may also present all the various intermediate grades of light brown, dark brown, yellow, etc. It may be brown or dark down the middle, and white at each side, the edges, perhaps, being red. It may likewise be "red, glazed and smooth, and dry." It may also be cracked or otherwise. It is not uncommon to see it dark at the back, while it is white or red at the top. When it is of a brown, reddish-brown, or black color, there are apt to be collections of dark-colored matter about the mouth, called in medical language "*sordes*." Such matter may consist of dried vitiated secretions from the mouth and throat, or from slight effusions of blood which coagulate in the mouth, presenting a dark appearance. The tongue is apt to be more or less tremulous in fever, the same as other parts of the body.

The animal heat sometimes becomes a good deal elevated, but not so much as the patient's sensations would seem to indicate. It is not uncommon for the temperature to rise in this kind of fever to 105°, 108°, and even 110° Fahr.; that is, twelve degrees higher than its natural state. The heat of a fever patient seems often to have something

peculiar about it; it is a pungent or biting heat; and Sir Gilbert Blane says that this *mordant* heat, as it is termed, sometimes impresses upon the palm of the hand of the practitioner who has grasped the patient's wrist a glow of heat which lasts for hours, if the hand be not washed sooner. This is said to be more especially true of ship fever. Galen, when treating of autumnal remittent fever, says that the great mark of it is the mordacity and acrimony of the heat, which corrodes the touch just as smoke does the nose and eyes. There may be more imagination than reality about this; but the remarks are given for what they are worth. It sometimes, also, happens in fever, even of the continued forms, that the heat falls *below* its natural standard, particularly in the latter stages of the disease.

Until after the fever has somewhat subsided, the *pulse* is in general, like the temperature of the body, augmented. It may be full or hard, soft, small, or weak, presenting, in short, in different cases, almost all the varieties of pulsation that can be conceived of. In some cases it becomes so feeble that it can scarcely be distinguished, constituting what is called a *fluttering* or *vermicular* pulse. The *quickness* of the pulse in typhus varies much in different cases, and from time to time in the same individual. In some extreme cases it has been known to become as quick as 200 in the minute. Such instances, however, are rare. The pulse, in fever, seldom is found to be more than 160; its more common range is from 100 to 140; in some cases it may be much less—in others more. The pulse should be carefully watched in fever, as there is no better index by which to determine the patient's condition than this.

The *appetite* is usually altogether absent after the disease has fully set in. Ordinarily, when there is a considerable degree of pyrexia present, the stomach is wholly unable to perform its function. In some cases individuals have gone two and even three weeks without any nutriment other than water, recovering in the end perfectly well. Yet there have been cases of fever in which the appetite was voracious. Dr. Satterly is quoted by Dr. Elliotson as giving a case of a boy who labored under typhus fever, attended by marked inflammation in the head, and in which the exacerbations of fever were always attended with a voracious appetite; so that in the midst of the fever he would eat four meals a day, and each meal sufficient for a stout laborer. Besides those four meals of meat and vegetables, he daily ate many pounds of dry bread, biscuit, and fruit. He had no sooner eaten a meal, than he denied that he had eaten any thing, so that the more he ate the more he desired. If he was not fed the moment he requested it, he sucked the bed-clothes and bit his fingers like a child. He discharged

several very copious stools a day, which evidently saved his life, for he recovered perfectly.

Usually, as the fever declines, the appetite returns, and in most cases soon becomes voracious. It is necessary of course to guard against over-eating in such cases, although those who are properly treated by water are not apt to have a relapse, unless some very great impropriety is committed.

When typhus is communicated from one person to another, the period of incubation varies, it is supposed, the same as happens in small-pox, measles, etc. It is believed that it may occur almost immediately, in a day or two; and in other cases that it lays dormant for several weeks, and even months. In such instances there is, of course, necessarily some doubt. The most common period of incubation in typhus, however, is supposed to be from one to two weeks.

The *duration* of typhus fever, as we see under the ordinary modes of treatment, is very variable. When it terminates favorably, it usually runs three weeks or more, there being about one week of its increment, another of its formed state, and a third of decline. But not unfrequently it lasts much longer than this period. There is no regular rule for it. It may terminate in seven or eight days; and it is asserted on such authority as Drs. Currie, Good, and others, that it has been cut short by cold affusion the second or third day, and this even when it occurred in a malignant form. Fatal cases may end at any period between the first paroxysm of attack and weeks or months after. More commonly death does not take place till from the seventh to the twelfth day.

*Critical days.*—It was held among the ancients that a favorable change in fever is more apt to occur in seven days than others. According to Hippocrates and Galen, the greatest number of fevers terminate on the 7th day, and many on the 14th, those two days being the most favorable. Next to these in importance are the 9th, 11th, 20th, or 21st; 17th, 6th, 4th, 3d; 18th, 27th, and 28th. The 6th day was reputed the most unfavorable of all. After this the most unfavorable were the 8th, 10th, 12th, 16th, and 19th. The 13th was a sort of neutral day, the crisis that might happen upon it being neither favorable nor unfavorable. Among some of modern observers the tables which have been collected would seem to favor the doctrine of critical days as held by Hippocrates and other eminent physicians. The majority, however, are against it.

Subjoined I give the table of Dr. Davidson, showing the day of the disease on which complete convalescence was established in 181 cases of eruptive typhus. By convalescence, in this enumeration, is meant

"when the patient's pulse was natural, his tongue pretty clean, his sleep tolerably sound, and his appetite moderately good."

| MALES.        |                 | FEMALES.      |                 |
|---------------|-----------------|---------------|-----------------|
| No. of Cases. | Day of Disease. | No. of Cases. | Day of Disease. |
| 1.....        | 12th.           | 2.....        | 18th.           |
| 4.....        | 13              | 7.....        | 14              |
| 2.....        | 14              | 11.....       | 15              |
| 9.....        | 15              | 8.....        | 16              |
| 9.....        | 16              | 9.....        | 17              |
| 9.....        | 17              | 10.....       | 18              |
| 6.....        | 18              | 6.....        | 19              |
| 7.....        | 19              | 10.....       | 20              |
| 8.....        | 20              | 8.....        | 21              |
| 10.....       | 21              | 5.....        | 22              |
| 8.....        | 22              | 2.....        | 23              |
| 2.....        | 23              | .....         | 24              |
| 6.....        | 24              | 1.....        | 25              |
| 2.....        | 25              | 4.....        | 27              |
| 4.....        | 26              | 1.....        | 28              |
| 4.....        | 27              | 8.....        | 29              |
| 1.....        | 28              | 2.....        | 30              |
| 8.....        | 29              | 1.....        | 32              |
| —             |                 | 4.....        | 34              |
| 90            |                 | 1.....        | 36              |
|               |                 | 1.....        | 44              |
|               |                 | 2.....        | 54              |

Total, 90 + 91 = 181.

Average convalescence in males, 19.7.

" " females, 21.3.

" " males and females, 20.5.

Typhus fever may attack persons of any age ; but it is most common with those in middle life. Infants and young children, as well as very old persons, are not so subject to it. It affects both sexes alike. Blacks appear to be more liable to it than whites.\*

It prevails at all seasons of the year, although both extreme cold and extreme heat are known to be unfavorable to its production. Intense cold is probably less favorable to it than intense heat ; but in the northern part of this country it generally seems to have a preference for the winter season, doubtless because the inhabitants house themselves up so closely and heat their rooms to so high a point. In warmer latitudes, where people live much in the open air, typhus is much less prevalent than with us here in the north.

*Causes.*—The question as to whether typhus fever is ever contagious, has been the occasion of a great deal of medical controversy. On the

\* Of typhoid fever of the French, which comes under the general head of typhus in the present work, in 255 cases observed by Louis and Chomel, 78 were from fifteen to twenty 95 from twenty to twenty-five ; 54 from twenty-five to thirty ; 22 from thirty to forty ; 5 from forty to fifty, and only one above fifty

one hand it is easy to adduce a multiplicity of facts that go to establish the affirmation of the question, while on the other a perhaps equal amount of testimony can be quoted for the negative. As is often the case in disputed points, the truth lies between the two sides. Typhus fever is beyond doubt sometimes contagious, that is, it communicates itself to others, though not to all who come within its influence. To some, then, it is contagious; to others not. It also springs up spontaneously often, we have every reason to believe, just as measles, scarlatina, hooping-cough, and even small-pox are known to do. This is the "sum and substance" of the whole matter, in regard to the contagiousness and non-contagiousness of this disease, as I myself regard it.\*

It is not pretended that confinement in foul air is of itself sufficient to generate typhus in all cases; yet it certainly does often occur, and in its worst form, in situations where human beings are crowded together, especially in such places as prisons, badly ventilated hospitals, the more confined parts of large cities, and in camps and ships. A large proportion of fever patients that are brought into the hospitals of our American sea-ports are of the poor emigrants brought in the crowded steerages of ships; and not unfrequently large numbers of the steerage passengers die of the disease before the vessel arrives at its place of destination. In these most loathsome receptacles of filthiness there are a variety of causes that operate to produce the disease, such as air of the foulest kind, offensive emanations from living bodies, and want of proper food and drink.

So important and striking is this relation between pure air and health, and foul air and fever, a few facts bearing on these points will prove instructive in this connection.

The terrible catastrophe which occurred in a prison of Calcutta, in 1756—"the Black Hole of Calcutta"—was one of the most frightful which has ever been recorded. One hundred and forty-six Englishmen were thrust into a wretched prison only eighteen feet square, in which there were only two very small windows by which air could be admitted; but as both of these were on the same side, ventilation was utterly impossible. Scarcely was the door shut upon the prisoners

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\* It is well worthy of remark, that all writers and observers are agreed upon the important point that it is among the poor and destitute, and those who are poorly housed, fed, and clad, that typhus commits its most fearful ravages. Those who live in airy and well-ventilated houses, and in healthy localities, whether in city or country, are abundantly supplied with good and healthful food and water, and are not subjected to the more common causes of mental despondency, are seldom attacked with the disease. And when it does occur under such circumstances, it is vastly less liable to spread itself in the way of contagion than when it happens among those of the lower class.



when their sufferings commenced, and in a short time a delirious and mortal struggle ensued to get near the windows. Within four hours those who survived lay in the silence of apoplectic stupor, and at the end of six hours *ninety-six* were relieved by death! In the morning, when the door was opened, twenty-three only were found alive, many of whom were subsequently cut off by putrid fever, caused by the dreadful effluvia and corruption of the air.

Dr. John H. Griscom, of this city, the talented author of a work on ventilation, in giving a public lecture at an educational convention in Newark, New Jersey, in 1852, on the subject of Physiology, mentioned the following remarkable facts, of which he held in his hands ample proof, in a letter from a distinguished citizen of New Jersey: In August (1837 we think the reporter remarked), a ship arrived at Amboy, with a number of passengers down with ship fever. There was no hospital, and temporary shanties of rough boards, with canvas roofs, were put up, a mile and a half from the landing, near a pure spring of water. Thither the sick, eighty-two in number, were carried, under the full blaze of the sun. Some twelve of the number were then insensible, and no one expected them to live. A day or two after there came on a very heavy shower, perfectly drenching the sick persons, as their cabins were hardly any protection. Of course it was expected they would die by dozens, but, strange to say, *every one* of them recovered.

Here, then, was an instance, showing in the most conclusive manner the good effects of pure fresh air in preventing a most dreadful and destructive disease. It is true "the pure spring of water" and the "perfectly drenching of the sick persons" had no small share of influence in the matter; nevertheless, the pure air of heaven was no less important than the watery part of the regimen. Water-treatment, it should be remembered, implies not only *water*, but every natural substance and thing that can be made to act beneficially upon the system.

Another remarkable instance, showing the effects of foul air in fevers, is given in Lectures on Military Surgery, by Sir George Ballingall. He observes: "In the summer of 1811, a low typhus fever broke out in the fourth battalion of the Royals, then quartered in Stirling Castle. The season was the healthiest of the whole year, and the locality about the most salubrious in the country. On investigating the causes which could give rise to so much illness, under circumstances apparently so favorable to health, the mystery was speedily solved. In one room, twenty-one feet by eighteen, *SIXTY* men had been placed; and in another of thirty-one feet by twenty-one, *SEVENTY-TWO* men; or, in other words, a greater number of human beings had

been crowded into one place than the air which it contained could by possibility keep alive! To prevent absolute suffocation, the windows were thrown open during the night, from which a cold air streamed in upon those nearest to them. The natural result of this crowding was typhus fever, to which inflammation of the lungs was superadded in those exposed to the cold draughts.

"The two together proved very fatal. Had the officers who assigned quarters to these unfortunate men been acquainted in the remotest degree with the laws of respiration, and with the fact that one pair of lungs requires the use of fifty-seven hogsheads of pure air in twenty-four hours, they would, I believe, as soon have thought of ordering the men to be shot as of exposing so large a proportion of them to almost certain death from an easily avoidable disease." The simple fact added by this writer, that "*in less crowded apartments of the same barracks, no instance of fever occurred,*" speaks volumes to a reflecting mind on this subject.

The chief causes of fever assigned by medical inquirers are, as before remarked, dense population, bad ventilation, and destitution. But the late Dr. Combe argued, that however destitution or any other cause may operate remotely, the *immediate* cause is deficient ventilation. In proof of this theory, he made, in 1841, the following observations: "There is in the suburbs of Anderston a large house, called from its mode of construction and the vast crowd of human beings who lived in it, the *Barrack*. It is said that nearly five hundred persons, chiefly poor Irish, live in this building, each family having one, or at most, two little rooms. At one time fever was never absent from the Barrack; *five had been seen ill at once in one room; and in the last two months of 1831, the cases in this single house were fifty-seven.* During the five years, ending with 1849, there were 55,949 cases of fever in the whole city; consequently it will be observed, this house with, say 480 inhabitants, ought to have had, as its fair proportion, 112 cases, the population of the city being considered as at a medium 240,000. But," continues Dr. Combe, "how does the case really stand? Early in 1832, at the recommendation of an ingenious surgeon of the district (Mr. Fleming), a simple tin tube, about two inches in diameter, had been led from the ceiling of each room of the Barrack into a general tube, the extremity of which was inserted into a chimney of a furnace connected with a neighboring factory, by which means a perpetual draught was established upon the atmospheric contents of every room, and its inmates compelled, whether they would or not, to breathe pure air." The consequence—for we can not but consider it as the consequence—was, that during the ensuing eight

years, fever was scarcely known in that house, although it was at times very prevalent in the city.\*

"In cases of camp fever," says Dr. Stokes, "it has been repeatedly observed, that when the camp was broken up, and the sick separated into different parties, the fever totally disappeared, although the patients might be exposed to bad weather and the jolting of carriages."

It is to be laid down as a well-established fact, and one of great importance to the human race, that foul air is one of the worst, and probably *the* most prolific, of all the causes of typhus. It is very seldom that we see a fever happening in a healthy locality where due attention is paid to ventilation. True, we do now and then hear of bad cases of typhus, or malignant form of fever, in healthy localities, such, for example, as are to be found in various parts of New England. But how do people in such parts ventilate their houses? None at all, we may well say, especially in the winter time, when the whole object seems to be to exclude pure air as much as possible from the house; and it is at such times, as before remarked, that malignant fevers are most apt to prevail. In the summer the doors and windows are more likely to be thrown open, and hence in the warm seasons fevers are not so common. It is to be remarked likewise, that in our cities we seldom find a case of fever among those who inhabit large houses. True, those, even, are poorly ventilated in proportion to what they should be; but then the rooms occupied by the rich are large and airy, and their houses are proportionably much larger than those occupied by the poorer classes. As a consequence, fevers, especially of the malignant and more dangerous kinds, are seldom to be found among the higher orders of society.

*Treatment.*—Boerhaave, the most learned physician of his time, held as a theory that fever was caused by a *lentor* (something cold) in the blood. This theory—for it was only a theory—caused, for about two centuries, one of the most erroneous modes of practice that ever crept among the already multiform and barbarous jargons of the medical art. Alas! what erroneous theories and practices which the human mind could by any possibility invent, have not been put forth to torture human nature with! Every one who has arrived at adult age can well remember how, a few years since, no fever pa-

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\* Mr. John Pearson, of England, an able medical observer, who took great interest in establishing and promoting the fever hospital, informed Dr. Dunglison, "that when he was surgeon of the Lock Hospital, he uniformly observed when more than a certain number of patients were admitted in any of the wards, fever became more prevalent in the establishment; and that from repeated observation of this fact, he was induced to restrict the number of beds in each ward, and never afterward witnessed the recurrence of fever in the house."

tients—none with inflammatory disease of whatever kind—could touch a drop of cold water at the peril of life. “It will be the very death of you,” exclaimed the practitioner. The anathemas against no poison could be more imperative than this against pure cold water in fever. Now and then, however, there were those who, spite of physicians, nurses, and attendants, broke over all bounds in their phrensy, and betook themselves to this best of all remedies. And what was the result? Were these patients killed by the dreaded element? Every one knows the proper answer to the question. And now, thanks to Priessnitz, the temperance reformation, and the light of advancing science, this horrible practice of which I have been speaking, is consigned forever, I trust, to be remembered only among the things that were.

Whenever a general feverishness, from whatever cause, is brought on in animals, they not only instinctively drink water, but immerse themselves in it, if it is possible for them to do so. It is said that in some countries wild pigs become violently convulsed by eating henbane, and that by going into water and by drinking it they recover. And when animals become feverish from mutilations or mechanical injury, they seek lying upon the damp ground in the cool air, and even in mud and wet, and go not unfrequently into the water.

Do not these facts prove beyond all cavil THAT WATER IS GOD’S OWN REMEDY FOR FEVER.

Dr. Watson, in speaking of the natural tendency to health in fevers, asserts that he agrees most entirely with Dr. Pitcairn, who, being asked what he thought of a certain treatise on the subject, declared, “I do not like fever curers; you may *guide* a fever, you can not *cure* it. What would you think of a pilot who attempted to quell a storm? Either position is equally absurd. In the storm you steer the ship as well as you can; and in a fever you can only employ patience and judicious measures to meet the difficulties of the case.”

But is it not true that we can not only modify the symptoms of typhus fever, rendering the patient’s sufferings vastly less than they otherwise would be, *but actually cut short the disease*; that we can, I think hydropathy has already most conclusively proved. As bearing on this point directly, I shall here introduce several cases from that excellent author, Dr. Currie, who wrote about fifty years since. In his Reports he commences by giving an account of some cases from his friend Dr. Wright. He says:

“On the 1st of August, 1777 (says Dr. Wright), I embarked in a ship bound to Liverpool, and sailed the same evening from Montego Bay. The master told me he had hired several sailors on the same

day we took our departure, one of whom had been at sick quarters on shore, and was now but in a convalescent state. On the 23d of August we were in the latitude of Bermuda, and had had a very heavy gale of wind for three days, when the above-mentioned man relapsed, and had a fever, with symptoms of the greatest malignity. I attended this person often, but could not prevail with him to be removed from a dark and confined situation to a more airy and convenient part of the ship; and as he refused medicines, and even food, he died on the eighth day of his illness.

“By my attention to the sick man I caught the contagion, and began to be indisposed on the 5th of September; and the following is a narrative of my case, extracted from notes daily marked down. I had been many years in Jamaica, but, except being somewhat relaxed by the climate and fatigue of business, I ailed nothing when I embarked. This circumstance, however, might perhaps dispose me more readily to receive the infection.

“Sept. 5th, 6th, 7th.—Small rigors now and then—a preternatural heat of the skin—a dull pain in the forehead—the pulse small and quick—a loss of appetite, but no sickness at stomach—the tongue white and slimy—little or no thirst—the belly regular—the urine pale, and rather scanty—in the night restless, with starting and delirium.

“Sept. 8th.—Every symptom aggravated, with pains in the loins and lower limbs, and stiffness in the thighs and hams.

“I took a gentle vomit in the second day of this illness, and next morning a decoction of tamarinds; at bed-time an opiate, joined with antimonial wine; but this did not procure sleep, or open the pores of the skin. No inflammatory symptoms being present, a drachm of Peruvian bark was taken every hour for six hours successively, and now and then a glass of port wine, but with no apparent benefit. When upon deck, my pains were greatly mitigated, and the colder the air the better. This circumstance, and the failure of every means I had tried, encouraged me to put in practice on myself what I had often wished to try on others in fevers similar to my own.

“Sept. 9th.—Having given the necessary directions, about three o'clock in the afternoon I stripped off all my clothes, and threw a sea cloak loosely about me till I got upon the deck, when the cloak also was laid aside. Three buckets full of salt water were then thrown at once on me; the shock was great, but I felt immediate relief. The headache and other pains instantly abated, and a fine glow and diaphoresis succeeded. Toward evening, however, the febrile symptoms

threatened a return, and I had again recourse to the same method as before, with the same good effect. I now took food with an appetite, and for the first time had a sound night's rest.

"Sept. 10th.—No fever, but a little uneasiness in the hams and thighs—used the cold-bath twice.

"Sept. 11th.—Every symptom vanished, but to prevent a relapse, I used the cold-bath twice.

Mr. Thomas Kirk, a young gentleman, passenger in the same ship, fell sick of a fever on the 9th of August. His symptoms were nearly similar to mine, and having taken some medicines without experiencing relief, he was desirous of trying the cold-bath, which, with my approbation, he did on the 11th and 12th of September, and by this method was happily restored to health."

The doctor proceeds:

"On the 9th of December, 1787, a contagious fever made its appearance in the Liverpool Infirmary. For some time previously the weather had been extremely cold, and the discipline of the house, owing to causes which it is unnecessary to mention, had been much relaxed. The intensity of the cold prevented the necessary degree of ventilation, and the regulations for the preservation of cleanliness had been in some measure neglected. These circumstances operated particularly on one of the wards of the eastern wing, employed as a lock-hospital for females, where the contagion first appeared. The fever spread rapidly, and before its progress could be arrested, sixteen persons were affected, of whom two died. Of these sixteen, eight were under my care. On this occasion I used, for the first time, the affusion of cold water, in the manner described by Dr. Wright. It was first tried in two cases only, the one in the second, the other in the fourth day of fever. The effects corresponded exactly with those mentioned to have occurred by him in his own case; and thus encouraged, the remedy was employed in five other cases. It was repeated daily, and of these seven patients, the whole recovered. In the eighth case, the aspersion of cold water seemed too hazardous a practice, and it was not employed. The strength of the patient was much impaired by lues, and at the time of catching the contagion she labored under ptyalism. I was not then aware that this last circumstance formed no objection against the cold affusion, and, in a situation so critical, it was thought imprudent to use it. The usual remedies were directed for this patient, particularly bark, wine, and opium, but unsuccessfully; she died on the sixteenth day of her disease.

"From this time forth I have constantly wished to employ the affusion of cold water in every case of the low contagious fever in which

the strength was not already much exhausted; and I have preserved a register of 153 cases in which the cure was chiefly trusted to this remedy."

Before proceeding to explain particularly the manner in which Dr. Currie used water in fevers, he describes a fever which broke out in the 30th regiment, and the treatment adopted. It commenced about June 1st, 1792.

"Such men as were sent to the guard for misbehavior were confined in a dark, narrow, and unventilated cell. Several men were put there for drunkenness, and suffered to remain twenty-four hours. The typhus fever made its appearance among these men, and spread rapidly among the rest. The Liverpool Infirmary being full, a temporary hospital was fitted up at the fort. In two low rooms, each about fifteen feet square, were fourteen patients laboring under the fever. One was in the fourteenth day of the disease, two in the twelfth, and the rest from the ninth to the fourth day. In every case there was cough and mucous expectoration. Those who sustained the disease eight days, had *petechiæ* on the skin (spots resembling flea-bites, denoting great prostration). The debility was considerable from the first, and, as Dr. Currie says, had been increased in several cases by bleeding, before the nature of the disease was understood. The pulse varied from 130 to 100 beats. The heat rose from 101 to 105 degrees Fahr. There was great pain in the head, and in several instances low delirium.

"Our first care was to clean and ventilate the rooms, which were in a high degree foul and pestilential. Our second was to wash and clean the patients themselves. This was done by pouring sea-water over the naked bodies of those who were not already greatly reduced: the whole heat was steadily above the temperature of health. In those more advanced, whose debility was great, we sponged the whole surface with vinegar, a practice that, in every stage of fever, is most salutary and refreshing.

"Our next care was to stop the progress of the infection. With this view, the guard-house was first attempted to be purified by washing and ventilating, the greatest part of the furniture having been burned or thrown into the sea. All our precautions and exertions of this kind, however, were ineffectual; the weather was wet and extremely cold for the season; the men on the guard could not be prevailed upon to remain in the open air; and from passing the night in the infected guard-room, several of the privates took the infection. In several of these the fever ran its course, and in others it was immediately arrested by the affusion of sea-water. No means having proved effectual

for the purification of the guard-room, it was shut up, and a temporary shed erected in its stead. Still the contagion proceeded. On the morning of the 13th the whole regiment was drawn up at my request, and the men examined in the ranks. Seventeen were found with the fever upon them. It was not difficult to distinguish them as they stood by their fellows; the countenance was languid; the whole appearance dejected, and the eyes had a dull-red suffusion. These men were carefully separated from the rest, and subjected to the cold affusion, always repeated once and sometimes twice a day. In fifteen of the number—seventeen—the contagion was extinguished; the two went through the regular disease.

“On the same day the commanding officer, at my request, issued an order for the whole of the remaining part of the regiment to bathe in the sea; and for some time they were regularly mustered and marched down at high water to plunge into the tide. These means were successful in arresting the epidemic. After the 13th of June no one was attacked. In all, fifty-eight had the disease, of which twenty-two went through the regular course of the fever; and in twenty-six, the disease seemed to be cut short by the cold affusion. Of the thirty-two, two died. Both of these were men whose constitutions were weakened by the climate of the West Indies; both of them had been bled in the early stages of the fever; and the one of them being in the twelfth, and the other in the fourteenth day of the disease when I first visited them, neither was subjected to the cold affusion.”

This fever is generally termed, in popular language, the nervous fever, and when particular symptoms appear, the putrid fever. It is usually caused in situations where there is want of cleanliness, and more especially of ventilation; and when once cured, it is propagated by contagion. This is described by Dr. Currie as the common fever of England. It had usually one exacerbation (augmentation), and one remission or abatement in the twenty-four hours. The exacerbation was usually in the afternoon, and the remission toward morning. According to Dr. Currie, the safest and most advantageous time for the affusion of cold water is when the exacerbation is at its height, or immediately after the declination is begun; and this had almost always led him to adopt it from six to nine in the evening; but it is perfectly safe to use it at any time of the day, according to Dr. Currie, *“when there is no sense of chilliness present; when the heat of the surface is steadily above what is natural, and when there is no general or profuse perspiration.”*\*

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\* This rule respecting perspiration, as we shall hereafter see, relates only to that caused by too much exertion



These rules are really so plain, that it is difficult to see in what way any one could be at a loss in knowing how to proceed, at least safely, in the affusion of cold water in typhus fever; and yet Dr. Currie's method has been considered as being one which required a great amount of skill to determine when it should be used.

Dr. Currie afterward says in reference to this fever, when epidemic, "that a great number of cases occurred in which the disease was suddenly cut short by the use of the cold affusion on the first and second day of the disease. The good results were so uniformly, so precisely similar to what had been related, that a detail of cases would be unnecessary." He says, also, "that when an epidemic is spreading, and the danger is known, patients will take the alarm, on the first attack, and the power as well as the utility of such a remedy as the cold affusion, in such situations of general danger, will be easily imagined. It can not be employed too soon after the first attack, provided the original chill is over and the hot stage is firmly established."

In cases in which the affusion was not employed till the third day of the fever, he had seen several instances of the same complete solution of the disease. He had even seen this take place when the remedy had been deferred till the fourth day. Some cases are given to show the effect on the third and fourth days. "Jan. 17th, 1790, A. B., aged 19, a pupil of the Infirmary, caught the infection in attending the fever ward. When I saw him, in seventy-eight hours, the fourth day of the disease, he had all the usual symptoms—headache, thirst, furred tongue, pain in the back and loins, with great debility. Heat 101 degrees, pulse 112 in the minute. A bucketful of salt water was poured over him, as usual, at noon. His heat sunk to 99 degrees, and his pulse to 98. A profuse perspiration followed, with the cessation of all his feverish symptoms. This intermission continued for several hours, during which he enjoyed some comfortable sleep, but at five in the afternoon was again seized with feverish rigors, followed by heat, thirst, and headache, as before. An hour afterward, the hot stage was established. Heat 100 degrees, pulse also 100. The same quantity of cold water was again thrown over him, with similar effects. His pulse fell immediately to 80 the minute, and became more full. The heat became natural. The following night he took twenty drops of laudanum, and slept well. On the 18th, the second day of treatment, at noon, the pulse was 96 and soft, skin moist, but a little above the natural heat; the tongue a little furred, and the head ached. He also complained of thirst. The same remedy was again applied. He was greatly refreshed by it. The pulse fell to 90, the skin became cool, the thirst went off, and all the fever-

ish symptoms vanished. On the 19th, the third day of treatment, his pulse was 88, his heat natural, the thirst and headache gone, and appetite improving. The ablution was repeated for the last time, at six in the evening. On the 20th he was further improved. On the 21st, had some debility. On the 22d, was free from complaint. This patient, during his fever, took no medicine but an effervescing mixture, the dose of laudanum excepted. The affusion was used four times."

Another case we cite: "Feb. 2d, 1792, S. C., a healthy man, forty-four years of age, about seventy-two hours after the attack, came under treatment. Pulse 100; heat 104 degrees; other symptoms as usual, but the pain in the head and back particularly severe. Two minutes after the affusion, pulse 90; heat 100 degrees. The patient felt great refreshment, and was entirely relieved of the pain in the head and back. In the evening, however, the exacerbation of the fever was severe, and the headache returned with violence. He passed a restless night. At four in the morning the affusion was repeated by his request. At nine, a gentle perspiration covered the surface of the body, the pulse 84, the tongue moist, the skin cool, and the pains of the head and back entirely gone. In the afternoon the fever returned, though in a less degree. The affusion was repeated the fourth time with the same happy effects; after which there was no return of the disease.

"Thus it appeared," says Dr. Currie, "that the cold affusion, used on the third and fourth days of fever, does not immediately produce a solution of the disease, but that it instantly abates it, and by a few repetitions brings it to a happy termination in two or three days."

The above cases, so clearly and candidly stated, and by so able a writer, prove beyond a doubt that we can, in many instances at least, cut short typhus fever, and that by so simple a process as affusion. With such facts on record, we may well say, how is it possible that any well-informed medical man can doubt that fever may be not only modified, but actually cured? I am led also to remark that if a process so simple, when applied at the proper stage of the attack, is capable of cutting short a pestilential disease, what are we not to hope for when our medical rulers shall become wise and candid enough to allow of a fair trial of the whole force of hydropathic treatment in the fever wards of our hospitals? They know, every one of them, that we hydropaths, as they call us, would gladly work night and day in the public institutions of this kind, "without money and without price," till we could establish the merits of the new method

*but they dare not allow it.* "Old dogs do not like to be taught new tricks."

In practicing these ten years in this city, I have had numbers of opportunities of treating the different forms of typhus. I have adopted almost all conceivable ways according to the hydropathic method, and have been successful in almost every instance. In some cases we have been able to do what we would; in others, only what we could. Some are so afraid of water, we can do but little; and some have such poor conveniences and so little help, that we can adopt hardly more than a sort of *nursing* course, and poor enough at that, often, among the poor of this great city. I have effected some admirable cures in typhus by tepid water alone, and not a great amount of that. In other cases we have used wet-packs, ablutions, shallow-baths, etc., etc., to the fullest extent, and with the best of success.\*

I make here a remark which I wish to be well remembered in regard to the time it requires to cure typhus. Those especially who have not access to a hydropathic physician, and must depend upon their own resources, will be likely to become discouraged if they regard what they read in some of the books. In general we can get a patient out of typhus in the course of two weeks. In some cases we can do it much sooner, as Dr. Currie also did. But be the time longer or shorter, we should not be discouraged. Experience proves that water is the best remedy for fever, as well as the most speedy in its effects.

When last at the "fountain-head of hydropathy," Priessnitz gave a number of us his directions for treating ship fever, which are the following:

1. "Envelop the patient in one or more heavy wet linen sheets, according to the heat and strength, the sheets not much wrung out, and to be frequently renewed as often, at least, as they begin to grow dry. There must not be much covering over the sheets. In severe cases the patient should be kept in the wet-sheet the most of the time until the fever is broken up. As much fresh air as possible is to be admitted into the room. The sheet should always be doubled, and wet towels applied to such parts as the armpits, between the limbs, and wherever one part comes in contact with another.

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\* The editor of Dr. Good's "Study of Medicine," asserts, that he saw many cases of typhus fever in the Military Hospital at Canterbury, in England, treated entirely by sponging the body with cold water, and making the patient drink copiously of the same cheap article, and that the success of the plan was on the whole very satisfactory. This goes to show that the most "heroic" treatment is not always absolutely necessary in this disease, although such treatment, when judiciously and skillfully managed, does the work in a much shorter time.

2. "The cold-bath is given three or four times in twenty-four hours, and even oftener, should there be much heat. If the patient is very weak, the water is used mild, but never higher than 20 degrees Reaumur (77 degrees Fahr.), and this should be diminished from time to time until it can be borne cold. The bath should, if possible, be administered to the patient in a reclining posture. At the same time the back of the head and neck should be bathed in water of the same temperature as the general bath, ending always with the water cold. The surface of the body should be rubbed constantly while the patient is being bathed, and the bath continued until the temperature of the armpits is the same as the rest of the surface.

3. "As the patient becomes able to take nourishment, give cold milk, fruit, and farinaceous food in small quantities, always cold, and at intervals of the usual meals. Great care is necessary in the food. Water at all times to be drank according to the dictates of thirst.

4. "Use the umschlag, or wet girdle, all the time when the patient is not in the wet-sheet.

5. "Injections, or clysters of pure water, are to be given if the bowels do not act naturally without; the water cold, if the patient is not very weak, one pint at a time.

"The object of the whole treatment is to supply the body amply with coolness and moisture, in order to counteract the tendency of the disease to dry up and consume the natural juices."

The above are the directions that Priessnitz gave us for publication in English and American papers, with the hope that some good might thereby be done. The ship fever, so called, is neither more nor less than severe typhus fever. Were he called to such cases as have been treated a length of time already by other modes, his directions would of course be somewhat different. If a patient has been all but killed with drugs (a thing often done), or if the disease has been allowed to go on until the strength is exhausted, and the patient has become delirious, then the treatment is modified. But even in such cases let the surface be sponged over with tepid water, as at 85 or 90 degrees Fahr., and see what relief will follow. Get permission of your doctor to do this; no one will object, only he will want a little vinegar or spirits and the like put with it; whereas the pure thing is the safest and best for the surface as well as the internal parts. Put also the great wet fomentation about the body, to act as a soothing poultice; this no physician will object to either. Have a mattress for the patient to lie upon—never a feather bed; and use the hair or straw pillow, instead of the heating, debilitating, and in every respect injurious feather pillow, which is in universal use. There is truth in the old maxim,

"Keep the head cool." Instead of worrying and irritating the delicate internal organs with cathartics, administer daily, if need be, clysters of pure tepid water. I repeat, no well-informed physician will object to any of these things. Get thus what water-treatment you can, in the absence of such practitioners as understand the new mode thoroughly. Nature and good nursing have cured many—drugs very few.

The advantages of fresh air in fevers is wonderful. I was told by the learned Dr. M. Barry, of Edinburg, that during the past summer, in that city, the hospitals were so filled that it became necessary to erect tents in the open air to accommodate patients having the ship fever; and it was found the mortality was much less in these airy, outdoor places than in the more comfortable hospitals. Could all fever patients be, from the first, kept perfectly clean, have constantly a full supply of cool, fresh air, pure soft water to drink as the thirst indicates, and be nourished in the most careful manner, how few would die with fever! But the sad truth is, as patients are treated nine times in ten, if not ninety-nine in the one hundred, we might be led to suppose that men were putting the old saying into practice—"If any man sin, let him fall into the hands of the physicians."\*

One of the most striking effects of water, and, I may add, of all the phenomena observable in nature, is the *revivifying* power of this remedy. Even when life has appeared to be extinct, in not a few cases has it been known to restore the individual. The benevolent Howard has given us facts on this point.

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\* Priessnitz often treated cases of typhus or nervous fever in his neighborhood, and with uniform success. Mr. John Gibbs, of Ireland, author of a valuable work, entitled, "Letters from Graefenberg," gives the following case, treated by him:

"A bath-servant had nervous fever. His sickness commenced with very great headache and excessive weakness, particularly in the legs. He was so weak that he could not even stand. At first he thought he had got a bad cold, and he took a wet-sheet and banded the head without consulting Priessnitz. On the fourth day he became so bad that he sent for Priessnitz, who ordered him fifteen abriebungs, or wet rubbing-sheets, and three or four head-baths daily. The sheets for the wet-rubbings were not at all wrung out, but they failed to check the fever, which continued to increase for two days; and the patient then feeling himself so weak that he could no longer bear the wet-rubbings, Priessnitz ordered him daily twelve sheets, barely wrung out, and but very slightly covered over; four, of a quarter of an hour each, to be taken at a time, and to be succeeded by a shallow-bath for a quarter of an hour. In this bath he was rubbed for ten minutes, and as his head was very feverish, he was obliged to lay it in the bath for the remaining five minutes. Under this treatment the fever entirely left him in the course of a fortnight, so that the treatment was diminished to three wet-sheets daily, and he was out again before the third week was over. In the second week he got, besides abundance of smaller crises, four large boils, which opened in the third week, and discharged matter copiously for a fortnight; in consequence of which he daily felt considerable improvement; and before the end of six weeks he was so strong again that he was able to return to work."

"I might mention," says Howard in his writings, "as an evidence of the advantages of baths in prisons, that I have known instances where persons supposed to be dead of jail fever (typhus gravior, or malignant typhus fever), and brought out for burial, on being washed with cold water, have shown signs of life, and soon after recovered."

Howard, when at the county-jail in Hertfordshire, was told of a prisoner, who, on being pumped upon in the yard when in a state of apparent death from the jail fever, recovered; and he declared afterward that he had known other instances of the same kind.

Some four years ago an account was published in the papers of a singular case of resuscitation, by means of water, in the State of Wisconsin. The account was as follows: "Captain Hood, a well-known citizen of Beetown, Dane County, had a little child taken sick, which, after much suffering, and with all the usual indications of the final struggle with death, received its parents' parting embrace in the presence of other friends. The glazed eyes of the little sufferer were closed, and a bandage was applied to support the under jaw, as is customary. After the lapse of some twenty or thirty minutes, a woman in attendance, who was aiding in the ablution and laying out the corpse, commenced by sprinkling cold water in its face. Strange to tell, the child opened its eyes, began to recover, and is now in the enjoyment of full health."

Another important effect of water is its power of quelling delirium, if this have not existed for too long a time. Multitudes of cases have occurred in which patients have stealthily gone into cold water, when the height of delirium was upon them, and have been quickly restored to their senses. Some amusing facts of this kind might be given, one of which I quote from Dr. Baynard, who wrote one hundred and fifty years ago.

"A Turk (a servant to a gentleman) falling sick of a fever, some one of the tribe of treacle conners being called in, whether apothecary or physician I can't tell, but (according to custom), what between blister and bolus, they soon made him mad. A countryman of his that came to visit him, seeing him in the broiling condition, said nothing, but in the night-time, by some confederate help, got him down to the Thames' side, and soundly ducked him. The fellow came home sensible, and went to bed; and the next day he was perfectly well. This story was attested to by two or three gentlemen of undoubted integrity and worth; and I doubt it not, but believe it from the greater probability; for I'll hold ten to one on the Thames' side against treacle, snake-root, and all that hot regimen which inflames and exalts the blood, breaks its globules, and destroys the man, and then, forsooth, the doctor sneaks away, like a dog that has lost his tail, and cries, 'It

was a pestilential, malignant fever, that nobody could cure;' and to show his care of the remainder, bids them open the windows, air the bed clothes, and perfume the room for fear of infection; and if he be of the right whining, canting, prick-eared stamp, concludes, as they do at Tyburn, with a mournful ditty, a psalm, or a preservative prayer for the rest of the family. So *exit* Prig, with his starched, formal chops, ebony cane, fringed gloves, etc."

Dr. Good, also, in alluding to the fact of the system being in a very torpid state in nervous fevers, and that consequently it is very little liable to be injured by cold applications, cites, from the Philosophical Transactions of 1768, the case of a patient at Lucca, given by Dr. J. Benevuti, and which bears on this point. "On the ninth and tenth day from the incursion of a malignant fever, he was thought to be in great danger. On the eleventh day he expressed a wish to go to sleep, and desired the attendants to withdraw. On their return, he was found to have left the bed; and three days afterward was discovered in a hut in a vineyard, about two miles from the house, having just recovered his senses, and as much wondering how he came there, as those who had traced him out. It appeared, on further inquiry, that he had descended from his chamber by the window, in his shirt alone, and in a great perspiration, and had walked all the way in the snow, with which the ground was then covered, and had swallowed a large quantity of it to quench his thirst. Yet neither the cold air nor the cold beverage affected him otherwise than beneficially. He continued well from this time." Facts of this kind speak well, certainly, both for the efficacy and safety of water-treatment.

There are several other circumstances relating to the treatment of typhus fever, all of which are highly important in this place, and which will be briefly noticed.

In fevers, as well as in other severe inflammatory diseases, in which the patient is obliged to remain in the horizontal posture much or most of the time, the feet are certain to become more or less cold. The most salutary method of warming them is for an assistant to rub them with the dry hand till warm. Wrapping them in warm flannel is also advisable; and so likewise a bottle of warm water or a warm brick, but not *hot*, as we so often read in the old-school books, and, I am sorry to add, sometimes in the new.

The custom of having *watchers* with the sick, as it is practiced in the country, is often productive of evil. Two or three persons remaining during the night with the patient in the sick room serves to contaminate the air, and besides watchers are in the habit of keeping apartments by far too hot, if it is in the winter season. The patient should

have the largest and most airy room that can be obtained; and it should be kept at a much lower temperature in winter than would be agreeable to persons generally in health, and those whose duty it is to attend to the sick person should remain in another apartment most of the time, so as not to render the air foul about the bed.

In case the patient is not so weak as to render it impracticable to move him often, it will be of essential service to change his bed and body clothing four times in the twenty-four hours. It is not absolutely necessary that the articles be washed so often as this; they may be hung out in the open air, or put before a stove or fire to ventilate. But they should also be washed often, much more so than is generally practiced. If the strictest cleanliness is observed in all these matters, it will not only contribute essentially to the patient's comfort, but will aid materially in his restoration to health.

It has been customary with physicians to recommend giving fever patients nourishment, not only several times during the day, but also in the night. This practice is often a mischievous one, hindering the patient as to his recovery, and causing, in some cases, a dangerous relapse. Those who recommend such a course do not seem to take into view the fact that for digestion to go on well and healthfully, even when one is not sick, the stomach must have time to do its work. We know that ordinarily from three to four hours is required for food to pass through the process of chymification, and that the stomach, in order to perform its functions properly, must have a period of rest after a portion of food has been digested. Now this rest is even more necessary in sickness than in health. The patient ought certainly not to have food oftener when he is sick than when he is well; and regularity in taking food is also of the utmost importance. Three times in the twenty-four hours is certainly often enough, and will in general be found the better rule.

In all severe cases of typhus, the period of convalescence requires much care and prudence on the part of the physician and attendants. True, in water-treatment there is nothing like that danger of relapse that there is in the old mode; still "prudence is always the better part of valor." The mildest and blandest forms of nutriment only should be given, and the bowels should, as a general thing, be made to act daily by tepid injections, if these are necessary. The mere exercise of the bowels in this way is useful even if little or no fecal matter is made to pass them. The quantity of water used should depend upon the patient's strength. Cathartic medicines of all kinds should be most sedulously avoided, for it is admitted that they not unfrequently cause dangerous consequences under such circumstances. In fevers of this



kind the bowels are often in an ulcerated condition. In such cases, harsh measures could scarcely fail of exercising a pernicious influence. The debilitating night-sweats which the convalescent fever patient is apt to be troubled with, are much more effectually combated by ablutions and spongings with cool or cold water than with the mineral acids, the tonics and bitters of various kinds that are by some recommended in these cases. Why, a good sponging of the surface with cold water is a hundred-fold more tonic to the skin, and consequently to the whole system, than any conceivable drug preparation administered internally can be. Besides, drug tonics soon wear out and become worse than useless debilitants, which water does not. If the patient can have his bed linen changed toward morning, or after he has slept some hours and become somewhat restless, it will be of great service to him, preventing the night-sweat and helping him to obtain sound and refreshing sleep, on which his recovery very much depends.

If the attack have been a severe one, the patient must exercise a good deal of patience in his recovery. Above all, he should not be carried away with the assertion that all fever patients may be cured in a single week! When every thing is managed the best it can be, it may require even months for his full recovery. Especially if the bowels have been ulcerated, will it require time for him to gain his full strength. He should all along exercise the greatest prudence and caution in every thing, and allow of no unreasonable draught being made upon either his corporeal or mental powers; and if he will but fulfill the order of nature in all these things, it is for his encouragement to remember that if he gets well through his attack, and does no violence to his system, his health will in the end be benefited by the ordeal he has passed through.

#### THE PLAGUE—PEST.

By most writers the plague has been regarded as belonging to the typhus family; but others have considered it as an "exanthematous disease, the eruption consisting of buboes, carbuncles, and pustules—white, livid, and black—and generally attended with malignant and very fatal fever." These considerations, however, are of little consequence; the disease should be treated according to its symptoms, and not its name. We never see the plague on this continent; but inasmuch as we often hear of the disease, some account of it in this place will not be uninteresting.

"The true home of the disease, where it prevails now, and has probably prevailed from the earliest period of history," observes Dr. Wood, "is in the regions bordering on the eastern extremity of the

Mediterranean and its tributaries. In the middle ages, and so late even as the sixteenth and seventeenth centuries, it occasionally visited Western Europe, and was well known in Italy, France, England, and Germany. London and Paris suffered from it greatly in former times. But for more than a century the plague has been almost unknown in the west of Europe; the last remarkable visitation having been in 1720, when Marseilles lost with it nearly one half her population. It is now limited chiefly to Egypt, Syria, Anatolia, Greece, and European Turkey; occasionally extending northward into Russia, and westward as far as Malta.”

*Symptoms.*—Usually the disease makes its appearance suddenly and without premonitory signs, and in the ordinary way of some fevers, as by chilliness, weariness, languor, uneasiness at the stomach, with nausea and vomiting occasionally, vertigo, headache, heat and dryness of skin, frequent pulse, and sometimes with darting pains in the armpits and groins. Buboës and carbuncles form early in many cases; but in others these do not occur. The fever increases rapidly, producing a variety of symptoms, such as redness of the eyes, flushing of the face, heat of surface, etc. There is confusion of mind, stupor, and delirium; great restlessness, anxiety, and alarm. If the disease prove fatal, the patient sinks in five or six days usually; but it may be protracted a fortnight or longer.

*Treatment.*—It is a great pity that water-treatment could not somewhere be brought into a full test in this disease. Dr. Currie, whose great interest in the subject led him to make all due inquiry in regard to this as all other severe diseases, was promised by the benevolent Howard that he would ascertain, as far as possible, what the success of ablution and other cooling measures in the plague had been in the East. This was at the time of Howard’s last visit to those countries, where the plague commits its most fearful ravages; but he never returned to report to Dr. Currie the results of his inquiries.\*

Doubtless a disease so formidable as this, happening oftencst among the most intemperate, debauched, and diseased persons of large cities, must often carry off its victims in spite of all remedial measures. This is true of cholera, typhus, dysentery, etc. But, on the other hand, there is also reason to believe that many a life might be saved by water-treatment, which, in plague, should be practiced in a man-

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\* It appears that in the raging frenzy that attends this dire disease, some sailors at Constantinople had thrown themselves into the sea, and on being taken out, recovered—a happy temerity, as Dr. Currie observes, not imitated by the regular practitioners. The knowledge of these facts led Dr. Currie to make the request of Howard, which he gladly promised to fulfil, but which his decease prevented.

ner similar to that for typhus, yellow fever, congestive fever, and, indeed, all sudden and malignant diseases accompanied with high heat. The symptoms, as they occur in each particular case, must be the guide.

In the drug method every conceivable plan has been tried in this disease, but with such utter want of success, that it is admitted on all hands that nothing is as yet known in regard to the true method of cure. All is confusion, and dark; "the practitioner is thrown upon his general principles;" he has no precedental guide. Bleeding, calomel, opium, and all the most barbarous of the old-school enginery, have been brought to bear, but to no purpose, except to torment the poor patient and hurry him the sooner to the grave.

*Prevention.*—We should be prepared to assert from analogy that much may be done by care toward guarding against the attacks of plague. Howard, we know, went freely and fearlessly among those who were suffering from it, and his habits, in regard to bathing, diet, etc., as we have elsewhere remarked, were admirably calculated to ward off contagion of whatever kind. The European residents in the infected cities of the Levant are said to be very cautious in their habits, and on this ground enjoy a comparative immunity from the disease. "Frequent ablution with cold water, perfect cleanliness in clothing, moderation in eating, drinking, and the pursuit of pleasure, ventilation, and the avoidance of crowded, filthy places," have been wisely recommended as a means of warding off this disease.

### MILK FEVER.

Within two or three days usually after the birth of a child the woman experiences more or less febrile excitement in the system. This is what is termed *milk fever*, it being connected with the coming on of the lacteal secretion. The attack sometimes amounts to "a smart febrile fit, preceded by shivering, and going off with a perspiration." It is not at all dangerous, seldom lasts over twenty-four hours, and during the time of its appearance the breasts are full, hard, and painful, which distinguishes it from attacks of a more dangerous character, such as childbed fever, presently to be spoken of.\*

*Treatment.*—It is of great service, in every respect, for the patient

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\* It is possible, however, for a much worse state of things to occur in milk fever. There may be a well-marked rigor, pain and throbbing in the head; intolerance of light and sound; flushed countenance; contracted pupils; redness of the eyes; full, frequent, and hard pulse; dryness and coating of the tongue; heat and dryness of skin; excessive thirst. If these symptoms become very severe, the milk ceases to secrete; the breasts become flaccid; the cerebral symptoms aggravated, which, if not soon relieved by appropriate treatment are followed by delirium.

to bathe three or four times a day at such a period. The more the fever is kept in check the better.

#### PUERPERAL OR CHILDBED FEVER.

This is admitted on all hands to be one of the most dangerous of all maladies. So sudden is its attack, so rapid is its progress, and so fatal are its effects, in the old methods of treatment, it has been aptly called the *puerperal plague*.

It comes on usually within the fourth day, reckoning that of delivery the first. It happens oftenest the second or third day. It may come on the first day, or it may, though rarely, attack the patient eight, ten, or more days after delivery. The later the day, the less the danger, as a general fact.

*Symptoms.*—Childbed fever is more commonly ushered in by a chill, which is not, however, long in duration. This is experienced most along the back, and sometimes about the shoulders and neck. The chill varies in degree of intensity in different cases; with some patients there is a degree of chattering, such as occurs in a severe ague fit; with others there is very little of the symptom; and in some cases no chill whatever is experienced. These last, however, must be the exception to the rule. In almost every conceivable case, a degree of chilliness, greater or less, is experienced. As in other inflammations, this chill is followed by fever. The intensity of the chill is considered no measure of the vehemence of the subsequent fever; the most terrific fever may follow very mild chills, and the contrary. Some regard that there is most danger to be apprehended when the chills are of a mild character.

Here I ought to remark, that patients should not be frightened at every little chill they may experience. The coming on of the milk—the milk fever, as it is called—heat in the breast, and a variety of circumstances other than those of childbed fever, may be preceded by, or attended with, chills. Indeed, almost every mother with a new-born child experiences more or less of chilly symptoms; and yet fortunately but few are attacked with that terrible malady of which we are treating. So much by way of encouragement in regard to the matter of chills.

In connection with the rigors before mentioned, the patient complains of pains in the abdomen; these may be so slight as to be scarcely perceptible to pressure on the part, or they may be so violent and severe that the gentlest touch of the finger is regarded with apprehension, and the weight of the bed-clothes proves a burden that can not be borne. “Sometimes the pain,” says Professor Meigs, “which

is, at the onset of puerperal fever, felt in the hypogastric region, is too intense to be borne by any human patience; and no exhortation or recommendation can prevent the woman from crying out aloud, or even screaming, with her agony. All over the abdomen these pains may be felt, above, below, to the right, to the left, in the region of the diaphragm, and in the lumbar region; this diffusion, however, is neither constant nor frequent, and it is found, especially in the less malignant varieties of the disease, that it is in the region of the navel, and more especially below it, that the patient complains." Severe after-pains may be experienced in connection with the disease, or the reverse. Little or no fever may occur in connection with severe pain, and so the contrary. If the pain is circumscribed, as we say—confined mostly to one spot—it is far more favorable; but if the pain and tenderness are spread over a large surface, beware, lest there be mischief at hand. If the pain be even slight, and yet diffused extensively over the surface of the abdomen, we must take heed lest we get into trouble that will imminently endanger the patient's life.

The pulse always rises high in childbed fever. This is one of the most distinctive features of the disease. It is seldom lower than 115 or 120 per minute, except when it is giving way before the power of remedial means. More commonly it rises to from 130 to 140 beats per minute, and it has been known to rise as high as 160 or 170. These last, however, are extreme cases—exceptions to the general rule.

Besides the symptoms enumerated, there sometimes occurs headache, sometimes vomiting, and at others purging, which last symptom is probably in general a good omen.

*Duration.*—Puerperal fever, like most other diseases, is not very uniform in its duration. It is, however, in general short. It may last for a number of days—for many days, if we reckon the convalescence a part of the disease. On the other hand, it may, like the plague itself, carry the patient off within the first twenty-four hours of the attack. Three or four days is reckoned to be the average duration of childbed fever, when it occurs in the epidemic form.

Professor Meigs has well explained why it is that childbed or peritoneal fever is so serious and dangerous a malady as it is. He observes: "The peritoneum (the lining membrane of the abdomen), a serous membrane, known for ages as one of the tissues most ready to take on inflammation, undergoes in labor, and during lying-in, changes of the greatest importance. Its great extent may be known by computing the superficial contents of that portion of the serous membrane which invests the alimentary canal. This canal is about forty feet in

length, and its outer coat is composed of peritoneum. If cut up by the enterotome, it would be at least four inches wide and forty feet long, affording a superficies of more than thirteen feet, to which should be added the superficial contents of the remainder of the membrane, where it invests the liver, the epiploon, the mesentery and mesocolon, besides the ligamenta lata, and all the other parts which derive from it their serous covering. This vast surface inflames rapidly and totally, and passes through the stage of inflammation with extraordinary speed. It can not happen that it shall ever be extensively inflamed without a coincident exhibition of the greatest disorder in the functions of the nervous organs directly implicated in its structure, or possessing with it physiological relations that could not be safely disturbed. The peritoneum is the investiture of the abdominal organs; the peritoneal coat of the stomach is as truly a part of the organ as its muscular or mucous coat; the same is true as to the peritoneum that invests the liver, that of the spleen, and the same truth is of the utmost import when it is stated with regard to the peritoneal coat of the whole alimentary apparatus. It is clear that extensive or universal inflammation of the peritoneal membrane is inflammation of all or many of the organs contained within the cavity of the abdomen. A great puerperal peritonitis, therefore, may be properly regarded as a complex inflammation of a vast number of organs indispensable to existence. Why should we be astonished, then, to see the power of the nervous mass sink under the invasion of causes of destruction so great and so pervading?

"Seeing that the superficies of the peritoneum is equal, probably, to thirteen or fourteen feet, we should have abundant reason to dread so extensive an inflammation from the constitutional irritation which it alone would produce; but when, in addition to that consideration, we take into view the great affusions which may ensue, the suppurations, the interruption of the intestinal functions, the depravation of the actions of the liver, etc., which are occasioned by it, we have still greater reason to deprecate its attack, and to seek for the justest views of its nature, and of the remedies most appropriate for its cure."

Professor Meigs elsewhere judiciously remarks, that, considering the changes that take place in the reproductive tissues at childbirth, "there is, in fact, greater reason for surprise, when we find it not followed by inflammation, than when we meet with the most violent and destructive cases of that affection."

*Treatment.*—A disease so sudden and so terrific as childbed fever often is, must be treated in the most prompt and energetic manner. The great thing is to quell the general febrile action and continue un-

remittingly to keep it in check till its force is wholly destroyed. The following case will serve as an illustration: A lady of delicate health and small stature, twenty-nine years of age, came to our establishment in the autumn of 1850, to be confined with her first child. On the 5th of November, considering herself within a week or ten days of confinement, she went, by my permission, in company with her husband, to hear Jenny Lind, at Tripler Hall. She slept well during the night after the concert, and at six the next morning she was awakened by pains resembling labor. These gradually increased until her child was born, a little after eleven in the forenoon, her labor being, on the whole, an easy one.

Two hours after the delivery she was taken up, and bathed thoroughly in a sitting-bath tub, the water at 70°. Being delicate, it caused her a good deal of shivering at the time; but this amounted to no harm, and usually occurs during a number of the first baths after delivery. At evening she was again bathed as before, and slept well during the night. Cold wet compresses were used freely, as according to our custom in such cases.

The second day, and onward, she was bathed four times—before breakfast, dinner, and supper, and on going to rest. She was able, also, to sit up more or less daily, and the first three days went on, in all respects, apparently well.

The fourth day, in the afternoon, there occurred a circumstance of ominous character, such as I hope it may be my lot seldom to encounter. I refer to the coming on of that most fearful malady, puerperal fever. The patient was already beforehand somewhat feverish, which was caused probably by the new excitement of milk in her system.

At the same time some relatives came to see her, it being the first time of their visiting her after the birth. They were in high glee, joking, talking, laughing, and making all manner of fun for a considerable time. All this transpired without my knowledge.

At the edge of evening I found the patient in a most terrific fever; her flesh was very hot, face flushed, pains in the back, abdomen, and head; the pulse full and throbbing at 140 per minute. Judge my surprise at these phenomena, knowing, as I did, that the patient had been remarkably well in the morning; I had not yet learned of the excitement she had undergone during the afternoon.

It is evident enough, I think, that under such circumstances some powerful and decided means must be resorted to; otherwise the disease might proceed so rapidly as to destroy the patient's life, and that too, possibly, within twenty-four hours.

We commenced the treatment by giving her a thorough ablution in water, a little tepid at first. She was then placed in a heavy linen sheet but moderately wrung from cold water, and packed loosely, with but little covering. The object of these applications was gradually to cool the system; to bring down the pulse, as soon as might be, to its natural standard; to arrest the inflammation that was already going on in the abdomen; and to quell the pains. The wet sheet was changed every twenty to thirty minutes. Gradually the pulse became less frequent, and the pains less, till midnight, when we had succeeded in bringing the pulse permanently down to 80, and the pains were quite gone. The wet sheet was then folded each way, making it four double, and placed about the patient's body, from the arins downward; in this she was to sleep the remainder of the night, having just covering enough to keep her comfortable. But if she should become wakeful from pain or feverishness, the husband was to renew it, that is, re-wet it in cold water, and as often as necessary. Once or twice only it was changed before morning.

The reader who is at all acquainted with the danger and the fearfulness of this most awful disease may form some idea of the anxiety I felt when I first found this patient with the attack upon her. He may judge, too, something of my feelings when, by midnight, I had succeeded in bringing the pulse down to 80, and quelling all fever and pain.

The next morning the patient appeared in all respects well, but somewhat weak, and not a little blanched. She got along afterward in all respects perfectly well.

In a very short time—I do not now remember in how many days after the birth—she commenced walking out carefully, and riding in the city to improve her strength, with a view of returning home as soon as circumstances might warrant.

When her infant was nineteen days old, feeling in all respects strong and well—as much so, perhaps, as ever in her life—she proceeded, in company with a female attendant, on her journey homeward, about three hundred miles.

I should remark that this patient was always of weak, nervous, and delicate constitution. She had had a miscarriage three years before this confinement, which weakened her a good deal. During this second pregnancy she adopted the water-treatment under my directions, but was obliged to use, both for bathing and drinking as well as other purposes, very hard, limy water—a circumstance considerably against her. She experienced numerous little ailments, but on the whole got along very well.



Professor Gilman, of this city, in his edition of the "Dublin Practice of Midwifery," gives us the following account of a method of treatment which was adopted with remarkable success in the old country:

"In an epidemic (puerperal fever), which raged at Keil in 1834, '35, and '36," says Professor G., "Michælis used ice, both externally and internally, with excellent effect. The cases in which he gave it with success were marked by burning pain and heat in the bowels, thirst, painful eructations, and tenderness of the epigastrium. The brain was clear; no delirium. The ice was given by the mouth, in bits the size of the finger, every half hour or oftener; it was also applied over the abdomen in a large bullock's bladder, extending from the epigastrium to the pelvis, in a layer half an inch thick. This application was in some cases continued for three days, the bladder being changed as soon as the ice melted. It was very grateful to the patient, and Michælis thought it had cured some cases where affusion had actually taken place into the peritoneal cavity. The use of ice was not persisted in unless it was grateful to the patient. The symptoms of amendment were a sudden and very great fall in the frequency of the pulse, a peaceful sleep, relief from the painful eructations, and diminished distention of the bowels. A profuse watery diarrhea occurring with favorable changes, seemed to him to be critical."

This treatment of Michælis is certainly a very bold one. Those who are well acquainted with the water-treatment will be able at once to comprehend the fact, that the applications mentioned were sufficient to cause "a sudden and very great fall in the frequency of the pulse, a peaceful sleep, relief from the painful eructations, and diminished distention of the bowels." Nor is it incredible that a cure might thus happen, even in some cases where affusion into the peritoneal cavity had actually taken place, since the effort of nature tends always, so long as life lasts, necessarily to that end. It is well worthy of remark, that the treatment of Michælis was persisted in only so long as it was grateful to the patient. This is an important rule to remember.

Nor do I regard it necessary, absolutely, to use ice in the treatment of this or any other inflammatory affection. Water—even at the temperature of rivers at this latitude in the summer—which is usually, I believe, at about 70° Fahr., may be very effectual in the cure of inflammatory diseases. Thus, if we wrap one or more wet sheets about a patient, having him, at the same time, on a cool straw bed, and neither the bed nor wet sheets having any covering whatever, we, through the natural processes of evaporation and refrigeration, abstract in a short time a great amount of animal heat. We may likewise change these applications as often as we desire, or pour water upon

the sheets frequently, and thus cool the patient to any desirable extent, without the use of ice or water that is extremely cold. It should be understood, also, that general applications—applications over the whole or a large part of the body's surface—are far more effectual in reducing the inflammation of a local part, than applications locally made can be. This fact is not generally understood.

*Is Childbed Fever a Contagion?*—This disease is believed by many to be at times contagious. It would, doubtless, be a difficult undertaking to prove positively that such is the fact. It is the opinion of some able writers on medicine, "that there is unquestionably an epidemic influence, or atmospheric constitution, which sometimes, in extensive districts of country, in villages, in towns, and cities, and especially in crowded lying-in hospitals, determines, by an unknown force, the attack of childbed fever, and so modifies the pathognomonic conditions as to hurry numerous victims to the grave, and this, notwithstanding the most reasonable methods of cure."

But that the disease is really communicable from one patient to another is not so palpable. One author—Professor Meigs—a man whose good character and long experience entitle his opinions to much weight, tells us that a great experience—and few have enjoyed greater—has not enabled him to perceive that he has been the means of disseminating this malady among lying-in women, to whom he had given professional aid while attending upon dangerous and fatal attacks of it, or after making or witnessing autopsic examinations of the bodies of the dead. On the other hand, Dr. Gooch, an author whose opinions are probably equally deserving of respect, tells us, in reference to puerperal fever, that it is not uncommon for the greater number of cases to occur in the practice of one man, while the practitioners of the neighborhood, who are not more skillful or busy, meet with few or none. A practitioner opened the body of a woman who had died of puerperal fever, and continued to wear the same clothes. A lady whom he delivered a few days afterward was attacked with and died of a similar disease; two more of his lying-in patients, in rapid succession, met with the same fate. Struck by the thought that he might have carried the contagion in his clothes, he instantly changed them, and met with no more cases of the kind.

A woman in the country, who was employed as washerwoman and nurse, washed the linen of one who had died of puerperal fever; the next lying-in patient she nursed died of the same disease; a third nursed by her met with the same fate, till the neighborhood, getting afraid of her, ceased to employ her. The disease has been known, according to Dr. Gooch, to occur in some wards of a hospital, while

the others were at the same time free from it. Dr. Blundell, who is certainly very high authority, while he admits that this fever may occur spontaneously, and that its infectious nature may be plausibly disputed, affirms, that in his own family he had rather that those he esteemed the most should be delivered, unaided, in a stable—by the manger side—than that they should receive the best help in the fairest apartment, but exposed to the vapors of this pitiless disease. Gossiping friends, wet-nurses, monthly nurses, the practitioner himself—these are the channels by which, in Dr. Blundell's estimation, the infection is principally conveyed.

Some authors contend, also, that it is only through the influence of the imagination, or by sympathy, that puerperal fever becomes more prevalent by times than ordinarily; and there can be but little doubt that these causes operate to a greater or less extent in communicating the malady. If a weak and nervous patient fears it, and especially if it is prevailing epidemically in the neighborhood in which she resides, she is much more liable to an attack than if she had no thoughts whatever of the disease. It is, moreover, under such circumstances, more likely to prove fatal than when it occurs sporadically.

Fortunately, however, the question of contagion does not at all affect the treatment of this terrible malady. All agree that it is an inflammatory disease which demands, under all circumstances, at our hands an antiphlogistic or anti-inflammatory treatment. There can be no two opinions on this point; and it is a circumstance worthy of the most particular remark, that we have in water-treatment the most abundant of therapeutic resources by which to combat inflammation of whatever name or grade—resources more potent and effective, a hundred-fold, than any other ever known to man.

#### MERCURIAL FEVER.

That form of high, active fever which is apt to attack a patient some days after an injudicious dosing with mercury, has been called by Dieterich *inflammatory* or *salivary* fever, a better name for which, however, is *mercurial* fever. In this disease there is "quick pulse; hot, dry skin; headache; thirst; loss of appetite; nausea; perhaps constipation; lassitude or muscular debility; oppression of the brain, as shown by a certain habitude of thought and expression; with restlessness and inability to sleep." There are also distinctive marks of the disease to be seen in the mouth. The mouth is dry, parched, and foul throughout; the gums are red, swollen, and spongy, and a peculiar dark-colored line is to be seen where they meet the teeth. This fever, if properly managed, runs its course in a short time, and termi-

ates often either in salivation, a profuse looseness of the bowels, perspiration, or a mercurial eruption over the body. There are, doubtless, some exceptions to the above rule; nor are we to suppose that a person can have the same health and integrity of constitution after such a fever as before.

*Treatment.*—It is supposed by many to be dangerous to use water in connection with mercury. But this is a mistake. True, mercury in its after effects renders the system more susceptible to cold. But mercurial fever should be treated on the same principle as any other febrile attack.

## CHAPTER III.

### THE NERVOUS SYSTEM.

THE nervous system is divisible into the *organic* and the *cerebro-spinal*. The first comprises the ganglia and nerves which are more immediately concerned in the growth and nutrition of the body; the second embraces the *brain*, *spinal marrow*, and their branches. Fig. 12 gives a rude view of the brain and the nerves of sensation and motion as they ramify in all parts of the living structure.

Fig. 12.



NERVOUS SYSTEM

The *cerebro-spinal axis*, as it is called, consists of two portions—the brain, situated within the skull, and the spinal cord, which is connected with it at the base of the brain, and occupying the hollow or canal of the spinal column.

The nervous system is the most interesting and important part of the living body. All the vital operations by which the system is nourished and sustained; all moral and intellectual manifestations take place through the agency of this portion of the human organism. It has been said, that the nervous system constitutes the man; that the bones and muscles, the whole assemblage of internal organs, with their various functions, are only intended to sustain and serve it. The nerves are more highly endowed with vitality than any other portion of the living body.

Fig. 18.



GANGLIONIC SYSTEM.

In fig. 18 is presented a view of the organic or sympathetic system. A A A. Semilunar ganglion and solar plexus. B. Small splanchnic nerve. C. Great splanchnic nerve. D D D. Thoracic ganglion. E. Internal branches. F. External branches. G. Right coronary plexus. H. Left coronary plexus. I. Inferior cervical ganglion. J. Inferior twigs. K. External threads. L. Internal twigs. M. Anterior threads. N. Middle cervical ganglion. O. Inferior twigs. P. External twigs. Q. Superior cervical ganglion. R. Superior branches. S. Inferior branch. T. External branches. U. Submaxillary gland. V. Vidian nerve. W. Naso-palatine branch. X. Spheno-palatine ganglion. Y. Ophthalmic ganglion. Z. Auditory nerve. 1. Renal plexuses. 2. Lumbar ganglia. 3. Internal branches. 4. External branches. 5. Aortic plexus.

It has been regarded by some, that the brain is the original point of nervous development, giving rise, like a great root, to the spinal marrow, and all other branches of the nervous system. Another doctrine

is, that the spinal marrow is the more important part. But it should be remembered that children are sometimes born without either

brain or spinal marrow, although, for manifest reasons, respiration can not take place in such cases, nor the child live. Still, the fact that children are so born, proves that there must be some other part in the living body of greater importance than the brain, so far as animal life is concerned. This portion is what is termed the *solar plexus*, or center of the *sympathetic nervous system*.

This system of nerves, called also the *ganglionic*, the *nutritive*, the *organic*, or the *vegetative* system, extends to every organ and part of the body. Wherever a blood-vessel goes to a part to nourish it, there is sympathetic nervous matter to preside over and regulate that nutrition. "The brain itself is nourished under this influence; and in this manner the phenomena of the brain and spinal cord of the nerves proceeding thence are regulated by the ganglionic nervous matter which pervades them." As a consequence of the influence of this set of nerves, which extend their influence throughout every part of the body, disease of the most distant organs and parts, as well as of those nearer the centers of vitality, is often connected with, and dependent upon, disorder in the centers of the ganglionic system. Thus, because of disorder of the stomach, a man may have gout or rheumatism in the toe, neuralgia in the head, etc.

In fig. 13 the white lines of the engraving are intended to represent the agglomerations and networks of the ganglionic system. But any representation on paper gives but a poor idea of the myriads of ganglionic filaments that pervade the organic parts of the living body to its minutest part.

The external surface of the cerebrum is seen in fig. 14. *a a*. The scalp turned down. *b b*. Cut edges of the skull bones. *3*. The dura mater suspended by a hook. *4*. The left hemisphere.

*The Brain and Spinal Marrow.*—In a collective sense, the brain signifies those portions of the nervous system, not including the nerves, that are contained within the skull, and called the *cerebrum*, *cerebellum*, and *medulla oblongata*. These are invested and protected by the membranes of the brain, which, together

Fig. 14.



THE BRAIN EXPOSED

with the latter, constitute the encephalon. Fig. 14 represents the brain exposed, the upper portion of the skull having been removed.

The *cerebrum* is divided superiorly into two hemispheres by the great longitudinal fissure; the brain is thus composed of two symmetrical halves. Each of these, upon its under surface, is divisible into three lobes—the anterior, middle, and posterior.

Fig. 15.



SIDE VIEW OF THE BRAIN.

C. Cerebrum. D. Cerebellum. E. Medulla oblongata.

The *cerebellum*, about seven times smaller than the cerebrum, lies directly beneath the posterior lobes of the latter, and, like it, is formed of gray and white substance—the former occupying the surface, and the latter the interior.

The *medulla oblongata* is the upper enlarged portion of the spinal cord, of conical shape, and about one inch in length, extending from the base of the brain to the atlas, or bony pivot, on which the head rests.

The membranes of the brain are the *dura mater*, the *arachnoid membrane*, and *pia mater*.

The *dura mater* is the firm, fibrous, semi-transparent, whitish membrane which lines the cavity of the cranium, protects the spinal marrow, and by its various expansions supports the different parts of the cerebral mass. It is called *dura mater* (*dura*, meaning *firm* or *hard*,



and mater, mother), because it was believed anciently that it gave rise to every membrane of the body.

AB, AB, are the right and left hemispheres of the brain. FF. The cerebellum. AA. The anterior lobe. *cc*. The line which denotes the separation between the anterior lobe and middle lobe. DD. The middle lobe. BB. The posterior lobe. *e*. The *pons Varolii*, which brings the two sides of the cerebellum into communication. It is also named the *tuber annulare*. *f*. The *medulla oblongata*. *rr*. The *corpora pyramidalia*. *ss*. The *corpora olivaria*. *tt*. The *corpora restiformia* are on the opposite side of the corpora pyramidalia.

1. First pair, or olfactory nerves, arise by three origins. These unite and proceed forward and inward in a groove in the inferior surface of the anterior lobes of the brain, and form a grayish swelling or ganglion. From this ganglion a great number of filaments proceed through the cribriform plate of the ethmoid bone, and are distributed upon the mucous membrane of the nose. It is the nerve of the sense of smell.

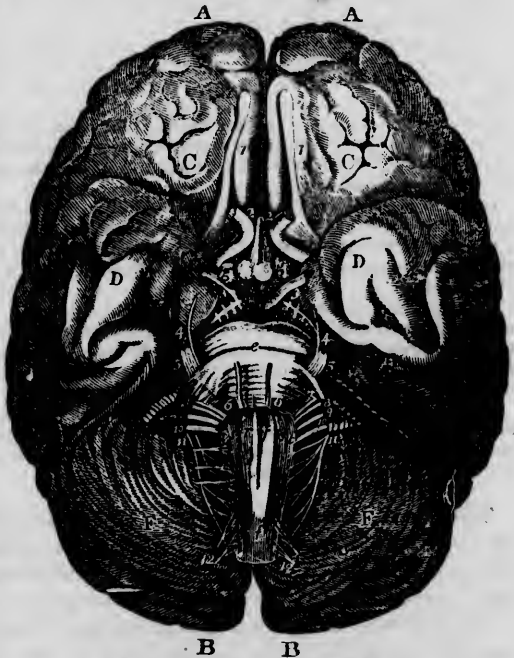
2. Second pair, or optic, arise principally from the anterior *corpora quadrigemina*. Each nerve passes outward through the optic foramen, or the sphenoid bone, and is expanded upon the retina. It is the nerve of the sense of sight.

3. Third pair, or *motores oculorum*, originate from the motor tract of the spinal cord, immediately after they have passed through the *pons Varolii*. Each nerve escapes through the sphenoidal fissure, and supplies five of the muscles within the orbit with motor filaments.

4. Fourth pair, or *trochleares*, originate from the *processus cerebelli ad testus* and *valvula* of Vieussens. Each nerve passes out from the cranium at the sphenoidal fissure, and is entirely distributed upon the superior oblique muscles of the eyeball. It is a motor nerve.

5. Fifth pair. These nerves issue from the surface of the brain, near the junction of the *pons Varolii* and *crus cerebelli*, but actually arise from the restiform bodies. Each nerve escapes from the cranium by three separate openings, and is extensively distributed upon the orbit and other parts of the face. Part of the filaments of this nerve are *sensitive*, and part *motor*.

Fig. 16.



VIEW OF THE STRUCTURE OF THE BRAIN.

6. Sixth pair originate from the pyramidal bodies, as they are about to enter the *pons Varolii*. Each nerve escapes through the sphenoidal fissure, and is entirely distributed upon the external rectus muscle of the eyeball. It is a motor nerve.

7. *Portio dura* of the seventh pair originate from the restiform bodies. Each nerve is extensively distributed in the muscles of the face and external ear. It is the motor nerve of the muscles of expression of the face.

8. *Portio mollis* of the seventh pair, or auditory nerves (eight pair of some authors), arise principally from a small gray swelling on the upper surface of the restiform bodies at the side of the fourth ventricle. Each nerve is distributed upon the internal ear, and is the nerve of the sense of hearing.

9. Glossopharyngeal nerves, or upper division of the eighth pair (ninth pair of some authors), arise from the restiform bodies near the sulcus, which separates them from the olivary, and are distributed upon the pharynx and mucous membrane at the back part of the tongue. It is a sensitive nerve.

10. *Par vagum*, or pneumogastric nerves, or principal division of the eighth pair (tenth pair of some authors), originate in the same line with, and close upon, the glossopharyngeal. These nerves are extensively distributed upon the larynx, pharynx, trachea, œsophagus, heart, lungs, and stomach. Part of the filaments of this nerve are sensitive, and part are motor.

11. Spinal accessory nerves, or lower division of the eighth pair (eleventh pair of some authors), originate from the upper part of the spinal cord, in the same line with the two preceding nerves. They enter the cranium by the foramen magnum, and pass out again from the cranium through the foramen lacerum, along with the other two divisions of the eighth pair. It is principally, if not entirely, a motor nerve.

12. Hypoglossal, or ninth pair (twelfth pair of some authors). Each originates from the sulcus between the pyramidal and olivary bodies, and escapes from the base of the cranium through the anterior condyloid foramen, and is distributed upon the muscles of the tongue. It is the motor nerve of the tongue.

The *arachnoid membrane*, so named from its extreme delicacy, the term signifying "like a spider's web," is the serous membrane of the brain and spinal marrow, and, like other membranes of the serous kind, is a closed sack. Its location is next within the dura mater.

The *pia mater* is a delicate, fibro-vascular membrane, which lies upon the immediate surface of the brain and the spinal marrow; it penetrates all of the depressions and furrows contained in these parts. Some have considered the pia mater as being only a network of blood-vessels, and not a membrane, strictly speaking.

The *spinal cord—medulla spinalis*—is the continuation of the *medulla oblongata*, commencing at the occipital bone, and descending to the vertebral canal as low as the second lumbar vertebræ; in its course it presents several enlargements; it is grooved on both its anterior and posterior surfaces by a furrow, which divides it into two great nervous cords which are closely united with each other. It terminates in an oval tubercle, from which a number of nerves are given off, giving it the resemblance of a horse's tail. The spinal marrow, so called, is altogether unlike marrow of the long bones. Like the brain, it is formed of two substances, white and gray; but the white is internal in the spinal cord, while in the brain it is external.

Fig. 17.

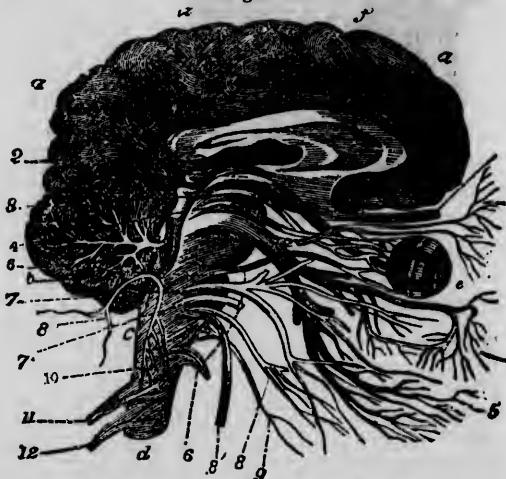


SPINAL CORD.

In fig. 17 are seen the relations of the spinal marrow to the medulla oblongata, pons Varolii, and cerebellum, as well as the several enlargements in its course

*The Cranial and Spinal Nerves.*—Of the nerves issuing through the foramina at the base of the cranium and other parts, there are nine pairs, called the *cranial nerves*. Functionally these are divided into three groups, namely, those of *special sense*, of *motion*, and a *compound of the two*. The large nerve which passes to the eye, and gives the sense of vision, is called the *optic nerve*; that to the nostrils, the *olfactory*, giving the sense of smell; that to the tongue, the *gustatory*, giving the sense of taste; and that which passes to the ear, the *auditory*, conveying to the brain the idea of sounds. Some of these may, as before remarked, have a compound function of both motion and sense

Fig. 18.



THE NERVES CONNECTED WITH THE BRAIN.

Fig. 18 shows the origin of the cranial nerves. The numbers are placed against the corresponding pairs of nerves. 11 and 12 are spinal nerves. *a a a*. Cerebrum. *b*. Cerebellum. *c*. Medulla oblongata. *d*. Medulla spinalis. *f*. Corpus callosum.

Connected with the spinal marrow, through small openings in the spinal column, there are given off thirty pairs of nerves. These are called *spinal*, in contradistinction to those given off from the brain,

which, as we have seen, are called *cranial*. Each of these nerves consists of numerous filaments, surrounded by the continuation of the pia mater, and an external envelop of strong cellular membrane, resembling the dura mater, and which may be considered merely as an expansion of the same texture.

In describing the spinal nerves, it is customary to speak of them as belonging to one side only. But it should always be remembered, that when "a spinal nerve" is spoken of, a pair is meant; that is, they are the same on both sides.

Fig. 19.



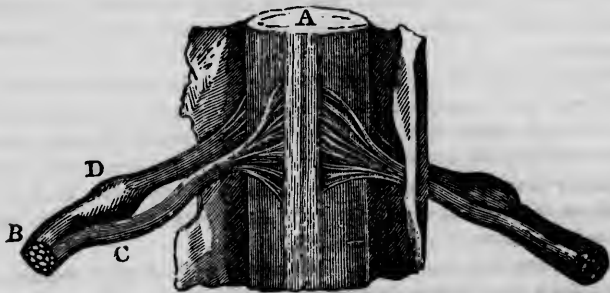
TRIFACIAL NERVES.

In fig. 19 is seen the distribution of the fifth pair of nerves. 1. Orbit. 2. Antrum of the upper jaw. 3. Tongue. 4. Lower jaw. 5. Root of the fifth pair, forming the ganglion of Casser. 6. Ophthalmic branch. 7. Superior maxillary. 8. Inferior maxillary. 9. Frontal branch. 10. Lachrymal. 11. Nasal. 12. Internal nasal. 13. External nasal. 14. External and internal frontal. 15. Infra-orbital. 16. Posterior dentals. 17. Middle dental. 18. Anterior dental. 19. Labial and palpebral branches of the infra-orbital. 20. Orbital. 21. Pterygoid. 22. Masseter, temporal, pterygoid, and buccal branches. 23. Lingual branch, joined at an acute angle by the chorda tympani. 24. Inferior dental, terminating in 25. Mental branches. 26. Superficial temporal. 27. Auricular branches. 28. Mylo-hyoid branch.

According to Sir Charles Bell, Magendie, and others, a part of the filaments which compose each spinal nerve rises from the back portion, and a part from the front portion of the spinal marrow. Those which rise from the back portion almost immediately form a ganglion, and proceeding from this, they unite with those that come from the front portion, and from the cord which goes out to be distributed over the body. The filaments which rise from the back portion of the spinal marrow constitute the nerves of sensation. Some few of these are distributed to the muscles of voluntary motion, through which the mind is informed of the action of the muscles in obedience to the will, but the greater part are sent to the external surface, serving to endow the skin in its minutest parts with a high degree of animal sensibility, and through which we perceive our relation with the external world. The filaments which rise from the front portion of the spinal marrow are the nerves of motion. passing to every part and ramifying in great

numbers over the whole of the muscular system concerned in the voluntary movements of the body. It is through these that the WILL acts in causing locomotion and all voluntary movements of whatever kind that we are able to put forth.

Fig. 20.



SECTION OF THE SPINAL CORD.

A. Spinal Cord. B. Spinal Nerve. C. Motor branch of Spinal Nerve.  
D. Ganglion of posterior branch of Spinal Nerve.

“ We see, therefore, that the spinal marrow and the spinal nerves, together with the medulla oblongata, and the several pairs of nerves within the cranium, are all purely and exclusively the agents of animal sensation, perception, and voluntary motion ; and that the brain itself, instead of being a galvanic apparatus employed in generating the nervous power or vital stimulus of the whole system, is appropriated entirely to the intellectual and moral powers and manifestations, and has little more to do with the rest of the body than to depend on its general organic economy for its own sustenance, and to constitute the special organism through which the mind is acted on by the body, and in turn acts on the body, directly in the exercise of the WILL, and indirectly in all mental excitements and emotions.”

Having thus briefly described the different parts of the nervous system, I proceed to make some remarks relating to the proper means of maintaining the health of this important division of the living body.

I observe in the beginning, *that the dietetic habits of civilized society at the present day are verging more and more into what is termed refinement, and which refinement, I hold, tends to derange the nerves of organic life, and through them the whole of the nervous system.* Thus, in our country especially, tea and coffee are becoming more and more generally used, and the food generally of a finer and more exciting quality

*Flesh-meat*, also, which is too exciting to the nerves, is more generally and extensively used as our country becomes more thickly populated and the facilities of travel and transportation increased.

*The use of tobacco*, one of the greatest evils with which a nation was ever scourged, is destroying the health of thousands upon thousands in the United States; and the filthy, unhealthy, nerve-destroying habit is, from some cause, most rapidly on the increase among us.

*The use of alcoholic stimulants*, which it is to be hoped is somewhat on the wane, in consequence of the efforts of temperance men, is yet a most fruitful source of nervous debility and mental disorder. It is ascertained that the children of the intemperate are much more liable to insanity than those who are born of temperate parents. And as for the effects of spirits upon the nerves of those who use them, the facts are too well known to need comment.

There is one very injurious practice which is much more common in old countries than in new, but which is beginning already to obtain in some parts of the United States, and that is one of the most certain means of deranging the nervous system. I refer to *intermarriage among blood-relations*. If persons of the same kin, however distant the relationship, marry, the progeny arising from such unions must always of necessity become more or less deteriorated. Not only are all kinds of ordinary nervous disorders generated in this way, but insanity itself in many instances. Whatever may be the importunities of parents and others, who often feel a desire to keep their *money* "in the family," I conjure the young to avoid marriages of this kind, and to regard them as they in reality and truly are—one of the flagrant violations of the Creator's laws.

The fashionable literature of the day tends, in many respects, to weaken the man and disorder the nervous system. In order to gain strength of intellect, the mind should have good and substantial aliment to live upon. The practice of reading novels, which has become so common in our country, and which seems to grow still more upon us, I regard as a sad evil. Certainly it can not be good for the brain of young persons, in particular, to be so much and so frequently excited, as must necessarily be the case, in reading almost continually works of fiction, as many do. That nervous diseases and insanity are increasing among us at the present is no wonder to any one who understands the causes of those disorders.

With reference to the BRAIN, in this connection, I have to remark that all physiologists and philosophers are agreed that this important part of the living body is the organ of the mind, and that it is the seat

of the passions and moral feelings of our nature, as well as of consciousness and all mental acts. It is the brain that distinguishes man from all other creatures; and hence a knowledge of the laws which govern it, and regulate its healthful action, are of the utmost importance to all.

It would be wholly foreign from the objects of this volume to enter into considerations relating to the several offices and functions of the different parts of the brain. It is sufficient for my present purpose to consider the brain simply as the organ of thought and feeling, and a part of the living structure which is subject to the same great laws as those which pertain to the economy generally.

*Mental Occupation, as affecting longevity and health.*—It is believed by many that literary pursuits are necessarily injurious to bodily well-being, and unfavorable to longevity. That students and literary men are often feeble in bodily health is admitted; but it does not follow necessarily that mental employment is the cause of such debility. It is very natural for a parent to attribute the illness of his son to excessive study, rather than to onanism, improper and excessive alimentation, and want of physical exertion, which are far oftener the cause of ill health in these cases. So, too, a clergyman, when he finds his health failing him, is much more apt to attribute his misfortune to excessive mental labor, than to physical idleness, over feeding, tea and coffee drinking, tobacco chewing, or excessive venereal indulgences, some one or all of which in most cases, have far more to do with it than mere toil of the brain. Mania, epilepsy, and palsy are doubtless sometimes brought on by excessive mental labors, but far oftener by some one of the causes mentioned, and in particular venereal abuses. The distinguished physician and naturalist, Blumenbach, has asserted that for half a century and more of his connection with one of the most celebrated universities of Europe, he had not known a solitary example of any youth falling a victim to his ardor in the pursuit of intellectual distinction. Eichorn, the eminent philologist and historian, and one of the most voluminous writers of the day, affirms boldly, "that no one ever died of hard study. A man may put himself to death over his books, or any where else; but literary application would tend to diffuse cheerfulness, and rather prolong than shorten the life of an infirm man." Professor Dunglison, of Philadelphia, one of the most distinguished of living medical writers, also gives his testimony, "that he can not recollect a solitary case of serious mischief induced by too great intellectual exercise, although the cause has frequently been assigned." I am thus particular on this point, because I regard the prevailing notion in this country, that intellectual occupations are necessarily unfavour-

avorable to health and longevity, as being altogether erroneous, and productive of much harm.\*

I hope the time is not far distant when it will be understood generally that all systems of education, and all efforts at the highest mental attainments of which the human mind is capable, must prove in the main futile, if the bodily health is not attended to. The brain, it will yet be seen and appreciated, depends upon the body for not only its growth, but vigor at all times. With a weak stomach, feeble lungs, and a deranged state of the sympathetic nervous system, how can the brain perform its functions vigorously? From the very nature of things it is impossible.

The late celebrated Chancellor KENT, of this city, who lived to be very old, retaining the vigor of his intellect to the very last, wrote, not long before his demise, that he considered his success in life as depending more upon the fact that he labored on a healthful farm a large part of the time until he was twenty-five, than to any other cause.

Look, too, at Webster, the godlike, as some were pleased to call him. He, too, was born and bred upon the hard New England soil, and knew what it was in his early days to put his hands to the plow. Webster had a strong body and a strong mind; but yet by his excesses he cut short his life many a year, and much as he accomplished, yet failed in doing more than half his natural work.

But notwithstanding mental culture is to be recommended, and that, too, of a high degree, it should yet be distinctly remembered that there are many dangers which beset the path of the student and literary man or woman, which pertain more especially to the exercise of the brain itself. Too often, indeed, scholars have gone on in their avocation in a hap-hazard if not fool-hardy way, as if the brain were not subject to the same general laws as the rest of the organism. Some of these considerations we will now briefly allude to.

In the first place, *mental labor should not be continued too long at a time*. It is well remarked by Tissot, that the disorders produced by efforts of the mind fall soonest upon such as are incessantly engaged in the contemplation of the same object. "In this case," he adds,

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\* Look, for example, at the signers of the Declaration of Independence. Of the fifty-six delegates who attached their names to this memorable document, almost all of them, we are told, were men of well-regulated and active minds, the "flower of the country," we may say. Two of them died from accidents early. The aggregate years of the remaining fifty-four were 8,609, giving to each an average of sixty-six and three quarter years.

Dr. Caldwell made an estimate, taking promiscuously twenty celebrated mathematicians, and found that their average longevity amounted to seventy-five years. In poets he found the duration of life to be somewhat less; but this is to be accounted for in the fact that men of this class have generally been either intemperate or guilty of other gross excess.



“there is only one part of the sensorium acted upon, and that is kept always upon the stretch ; it is not relieved by the action of the other parts, and therefore sooner fatigued and injured.” The same rule holds good with the brain as with the muscles ; that the exercise, which, if divided among the different parts, strengthens, but which, if confined to a few, must have an opposite effect. Boerhaave, who was one of the most industrious thinkers the world ever knew, after a long period of intense study suffered for six weeks from an excitement of the brain well nigh amounting to madness, “and characterized by that want of sleep, irritability, and indifference to ordinary interests which so often appear as the harbingers of insanity.”

Sir Isaac Newton injured his mind by continual and excessive mental application, so much so that it is doubted by some whether he ever recovered wholly from the shock. Sir Humphrey Davy and Sir Walter Scott are examples of this kind.

Pinel mentions the case of a young man distinguished for his talents and his profound knowledge of chemistry, who was occupied with a discovery which he hoped would lead him to fortune and distinction. To effect it the sooner, he resolved to shut himself up in his laboratory for several successive days ; and the better to banish sleep, and to raise himself to the level of his labors, he prepared a variety of stimulants. A singing girl also shared his retreat ; he drank spirits, smelled frequently odoriferous substances, and sprinkled the room with eau de Cologne. The combined action of all these causes, added to the heat of his furnace, caused such a degree of cerebral excitement, that at the end of eight days the most furious delirium took place, followed by a regular attack of mania. In this case there was already a predisposition to insanity, which of course aided in producing the sad results. If the brain is injured but for a single time in this way, there is no good reason to believe that it can ever fully regain its tone and vigor ; and in some cases the insanity will be found incurable to the end.

Religious and well-meaning persons sometimes commit a great error in dwelling too continuously upon a particular train of thought. We often hear of persons who attempt to pray a whole day or night, hoping thereby to obtain some particular favor of the Divine Being. Mr. Abbott, in his “Young Christian,” mentions a case of this kind. The young man resolved that he would pass the whole day in prayer. But very soon he became exhausted and weary. He, however, persevered through the whole day, with the exception of a few necessary interruptions, and when night came he felt a deadness and exhaustion of feeling, which he unhappily mistook for spiritual desertion. Surely such an occurrence is not to be wondered at, when it is considered how palpable a

violation of the Creator's laws it is to occupy a whole day in the contemplation of any particular subject !

*The Professions.*—If I were to venture an opinion as to which of the three professions, divinity, law, and medicine, is most calculated to deteriorate the vital powers, and shorten life, I should say that medical men, notwithstanding their necessary irregularities in regard to rest and exercise, and their frequent exposure to the causes of disease, do yet, on the whole, enjoy the best chance. They have a good share of out-door exercise, if actively employed, and are supposed to understand better than other men how to preserve health generally.

*Members of the legal profession* are of necessity a great deal too sedentary, their work being almost wholly confined to the office and the court-room. Lawyers are also very fond of stimulants of one kind or other—tea, coffee, spirits, and tobacco in particular, all of which waste the vitality of the system, impair the intellect, and shorten life.

*Clergymen* are probably as a class more sickly and effeminate than either lawyers or physicians. Society has been in the habit of putting its strait-jacket so closely upon the preacher, that he must not be allowed to work and use his bodily powers like other men, but must keep himself delicate and reserved. Think of a preacher getting up to speak to his people with sun-burned face and hands—that would be altogether too indelicate for the taste of most people ! Clergymen, likewise, are everywhere pampered and overfed ; they must visit often, and surely no tea or coffee is too good or too strong for the minister. He must have the best of every thing, not omitting the pastries, sweetmeats, etc. ; and surely it would be unkind in him not to partake of the “good things” the lady he visits provides. Clergymen, too, are accused by the doctors of abusing the marital privilege more than other men do, which is probably true, in consequence of the rich and over-stimulating diet they partake of not being counteracted by a proper share of muscular exertion. They likewise, as well as lawyers, are too often enslaved to the abominable health and life-destroying practice of using tobacco. It would be a poor sermon that would be preached by many of them if their pipe and cud were taken away only for a single day.

*Methodist itinerating clergymen*, so far as my observation extends, appear to be a more healthy body than stationed preachers of whatever class. Their travel and frequent change from place to place gives them a great advantage over those who remain mostly at home. No doubt, however, they are a good deal injured by strong tea and coffee, tobacco sometimes, and the other “good things” with which they are so bountifully supplied.

*Rules of Mental Labor.*—As I regard it a matter of importance that a studious man should be a healthy one, and that the true principles of mental culture should be understood, I venture to subjoin some rules for the guidance of those who are more especially interested in matters of this kind.

1. *Do not undertake too much in a given time.* In our own country, in particular, the student and literary man are often expected to do more in a brief space than is compatible with the best health. Hard study with us almost necessarily implies too sedentary habits. For a preacher to be obliged to write two or three lengthy discourses each week, while he is not allowed a proper share of bodily work, and to preach three, four, or more times, as is often the case, and to follow this year after year, is too much for any human constitution long to endure. Germany, France, and England are famous for great scholars; but those who pursue letters in those countries do not undertake the great tasks that clergymen are expected to perform in many parts of the United States. The German scholars, in particular, are famous for working long and steadily, but not hurriedly. When they have done a reasonable day's work, they are satisfied. They have, besides, a remarkable faculty of unburdening their minds, and throwing care off in such a way as to facilitate in a remarkable manner the restorative process which the mind in such cases so much needs. They are famous for attending to daily physical exercises.

2. *Do not labor too continuously without change.* If a man desires to do a great amount of mental labor in a year, month, week, or even in a single day, he must not continue too long at a time—must, every hour or two at furthest, relax his efforts for a time, and turn his thoughts as much as possible to another subject than that on which he has been engaged. It is a law of mental as well as bodily action, that to secure the greatest results the effort must not be kept up continuously for too long a time. Thus, if a man pursues any particular business, even of a light character, but which occupies his mind and body continuously, he can not go on for many weeks without becoming in some way disordered, so that he will be obliged to rest. In this city, the conductors of the small cars on the railroads have not a laborious task, certainly, and are allowed their regular rest at night; but no one has ever been able to go on more than six weeks in the occupation continuously without becoming sick. Hence we see the wisdom of the Divine institution of a day of rest once in seven.

3. *Exercise the mental powers most in the early part of the day.* If all of the habits are correct, the mind as well as the body will be found more vigorous and inclined to action soon after the restor-

ing power of sleep has been experienced, than at a later period of the day.

4. *Severe mental exercise should not be preceded by a hearty meal.* It is a law of nature that no two powerful actions can go on well in the system at the same time. While the stomach is made to work hard, the head can not. Some of the best scholars have practiced going through with their severer mental efforts early in the morning before eating any thing. The practice is, to say the least, a good one.

5. *Work mostly by the light of day.* It is a very unwise practice of many to read and write by artificial light at night, and then lay in bed in the morning, thus losing a portion of the best part of the day. Artificial lights are always a much greater tax upon the nervous system than the pleasanter and more genial light of the sun.

6. *The body should not be weakened by mental effort.* It is a law of nature that without a good degree of bodily vigor the mind can not long be sustained in healthful and effective labor. In an important sense, the body is the supporter of the mental function.

7. *Children and the young should not be engaged in mental labor too early.*—The greatest trouble I am aware in the mental training of the young is, not that they are taught too early: the overheated school-rooms, the improper benches, rendering school unattractive, and bad physiological training, generally have vastly more to do with mental precocity than mere urging the intellect too early. But it is safe to assert that, while all of physiological and hygienic circumstances of the child are made as good as it is possible to make them, schooling, while under puberty, should be made a matter of amusement rather than a task; and all along, *bodily development* should stand before mental in importance. A sound mind in a sound body should be the law.

## CHAPTER IV.

### DISEASES OF THE NERVOUS SYSTEM

#### INFLAMMATION OF THE BRAIN—PHRENITIS—PHRENSY.

IN consequence of blows upon the head, mechanical injuries, excessive heat, excessive cold, undue mental excitements, overtaking the brain, habitual drinking of spirits, drunkenness, gluttony, and other debaucheries, this important part of the system is liable to become inflamed. The poisonous narcotics, opium, hyosciamus, and stramonium, etc., given as medicine, sometimes cause this disease. Blood-letting likewise may bring it on; so also surgical operations. It may affect only one or more of the membranes of the brain, or the substance of the organ itself; and the attack may be only a very trifling affair, or one of the most severe and dangerous to which the system is liable.

Parents can not be too careful in regard to thumps and bruises on the heads of their children. A child gets a severe fall, when, perhaps, months after, as a consequence, the membranes of the brain inflame, and the child dies. This *meningitis* is one of the most dangerous of all diseases; and the parent or teacher who would *beat* a child on the head, as used to be done to some of us at school in our boyish years, ought to be sent to State Prison, to study physiology for one year at least. The kind of phrenitis of which I am here speaking seems almost necessarily a fatal disease; certainly such is true of it when treated by drug medication of whatever kind.

Inflammation of the brain is very apt to occur with children in connection with some other malady, such as bowel complaint, measles, scarlatina, small-pox, hooping-cough, etc. And the danger of the disease is to be estimated as being in proportion to the severity of the disease which appears to cause it. It is always to be considered as a very dangerous disease under such circumstances, and no time should be lost in the treatment, as a delay of a few hours may make all the difference between life and death.\*

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\* I am of the opinion that no danger can come upon the child's head in any acute attack of disease without the part first being for some hours at least considerably hotter than is natural. Parents, therefore, and all who have the care of children, can not be too vigilant in watching this symptom; if the part is found becoming of too high a temperature, means

One reason why children are so apt to experience affections of this organ is, that their head is considerably larger, in proportion to the rest of the body, than in the adult. It seems to be a law of nature, in regard to the diseases of children, that whenever there is any considerable constitutional disturbance, the larger and more important organs are more apt to become affected than the less important. Hence it is that a child may at first be taken with a bowel-complaint simply; but when this becomes so severe as to cause much constitutional disturbance, the brain is very apt to take on an inflammatory action of greater or less violence, after which dropsical affusion takes place, ending finally in death.

*Symptoms.*—In a well-marked case of this disease, there is violent general fever, violent heat, pain and throbbing in the head; redness of the face and eyes; dread of light and sound; great wakefulness and delirium, furious or muttering. The pain, which is one of the most prominent symptoms, is located variously—sometimes occupying the whole head, at other times only a part. In other cases it appears to be deep-seated, and somewhat indefinable as to its location. The pain increases usually in the same proportion as the other symptoms, and it does not usually continue severe a long time without delirium supervening. In connection with the above symptoms there may be nausea, heartburn, and pain in the stomach and bowels of a griping character.

*Treatment.*—Phrenitis, when severe, being a very dangerous disease, should be treated with the utmost promptness. The first object is thoroughly to cool the head and to reduce the general fever. It is seldom, if ever, necessary to shave the head, as is often done. The part may be effectually cured without resorting to that practice. If the treatment is commenced sufficiently early, the head kept thoroughly cooled, the general feverishness reduced, the bowels open, and the stomach free, there will be little difficulty in subduing the disease. Having the patient's head projecting a little over the edge of the bed, supported by two persons, holding at each end of a linen towel, for the head to rest upon, so that a large quantity of the coldest water can be poured upon the head and neck, to be caught in a tub or bucket below, is a good mode. At the same time wet towels are to be placed about

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should be immediately taken to remove the excess of heat. And always the sooner this is done, the easier is the object accomplished. If at the same time there should be general feverishness, we should adopt the measures appropriate to removing the pyrexia, as well as employ local means to the head. Thus, for example, we may give a cold, cool, or moderately tepid bath, a wet-sheet pack, etc., for the general fever, and at the same time make cooling applications to the head. We should, in short, at no time rest satisfied until the feverishness, both general and local, is entirely subdued; and the means should be followed both by night and by day, until the patient is either cured or past all hope.

the surface of the body, and changed as often as they become warm. These answer all the purposes of the wet-sheet, and prevent the necessity of moving the patient, which it is better to avoid. Bladders of pounded ice, or pounded ice placed between wet linen cloths, laid upon the head, are very useful. Silence must be enjoined, and the room should be darkened until light is borne. As in all dangerous diseases, when recovery begins to take place, the greatest care must be observed in diet. Both after and at the time of the disease, the bowels must be kept free by frequent injections of tepid water. By perseverance in these simple means, easily understood, many cases, that under ordinary treatment are lost, will in a very short time become effectually cured.

Captain Claridge gives a case of the "cure," as administered by Priessnitz, which exhibits at once the power of water treatment and the skill of its discoverer. It is this:

"A person, who had recently lost his wife and two children, was attacked with brain fever. Priessnitz ordered him a tepid-bath, in which he sat and was rubbed by two men, who were occasionally changed. The man became so deranged that it was with difficulty that he could be kept in the bath. In ordinary cases, this disease succumbs to the treatment in two or three hours; but the patient in this case became speechless at the end of this time.

"Priessnitz, with that coolness which is so leading a feature in his character, said, 'Keep on until he either talks much or goes to sleep. The latter the man at last did, but not until he had been in the bath for nine hours and a half, when he fell asleep from exhaustion at half-past ten at night. He was then put to bed, and the next day the fever had left him, and though weak he was able to walk about. If in this case Priessnitz had become alarmed, after the first two or three hours, and had discontinued the mode of treatment to try some other experiment, the consequence might have proved fatal.'

I ask the reader to reflect for a moment upon the great beauty, simplicity, and efficacy of water-treatment in this dangerous disease, and then compare with it the most horrible life-destroying methods there have usually been adopted in these cases. These are, "bleeding from a large orifice in the arm till the patient faints;" "bleeding at the temporal artery;" "bleeding at the jugular vein;" "cupping;" "leeches;" "blisters at the nape of the neck;" "blisters upon the shaved head;" "salivating the patient as soon as possible with mercury;" "antimony, given so as to keep the patient in a state of constant nausea;" "colchicum, on account of its depressing the whole system, producing nausea, and purging the patient violently;" these

recommended in their own words, are the "great things" of the old-school. Now mark: we can cure a case of phrenitis by water in less than one fourth the time that is required by drug-treatment; and who does not see what an immense difference there must be between the state of a patient's body that has been cured by pure water, and that of one who has been cured by bleeding, calomel, colchicum, etc. The truth is, more have been killed than saved by drug-treatment in this disease.

#### WATER ON THE BRAIN—HYDROCEPHALUS.

This disease may assume either an *acute* or *chronic* form. It is, doubtless, always preceded by more or less inflammation of the brain, although we may not always be able to detect that inflammation. It occurs more frequently in children, and is seldom known to happen after the age of twelve or fourteen years. "It is an affection which has been observed to pervade families, affecting all or the greater part of the children at a certain period of their life; which seems to show that in many cases it depends more on the general habit than on any local affection or accidental cause." Scrofulous and rickety children are more subject to it than those of healthy constitution.

*Symptoms of the acute form.*—These have been divided into three stages. In the *first stage*, there is high general fever usually, great heat in the head, headache, dread of light and sound, with stupor and delirium. In the *second stage*, when the effusion has taken place, there is slowness of the pulse, but with more or less general fever and heat in the head; the child cries out and moans frequently as if in distress; the pupil is dilated, with perhaps squinting of the eye. In the *third stage*, the pulse is frequent and weak, with some general fever; there is profound stupor, paralysis at times, convulsions, and involuntary evacuations. With these symptoms death may suddenly close the scene.

*Treatment.*—It should be remarked that this disease is very uncertain in its duration; it may last only a day or two, destroying the patient at once, as it were; in other cases it may extend to two or three weeks. The treatment should be active in proportion to the severity of the symptoms. If there is much heat and febrile excitement, it should be the same precisely as if the brain were simply inflamed. We are obliged to do so in fact, because it is not possible to tell exactly when the effusion commences. We have reason to believe that very few cases are ever cured after water has actually formed; and yet it is the opinion of the best judges that such do sometimes occur. At any rate, we should act upon the principle that while there is life



there is hope, for every now and then it happens in medical practice that the patient gets well when we had supposed the case a hopeless one.

*Prevention.*—The fact that a strong predisposition to water on the brain is transmitted from parent to child, should make us watchful in regard to the means of preventing the disease. Speaking on this subject Dr. Wood observes: "It is often hereditary in the same sense as other tuberculous diseases; that is, the general diathesis or predisposition is derived from the parent, and circumstances afterward give it one or another direction. The meningitis can scarcely be said to be itself hereditary, as persons affected with it very seldom live to be parents. Nevertheless, children are certainly born, not only with a general tuberculous diathesis, but also with a particular tendency to this disease, as proved by the fact that in some families almost all the children die with it, one after another, without any appreciable external cause, and solely in consequence of some peculiarity in their organization."

Nor can there be any doubt but that this peculiar diathesis is susceptible of being created after birth. Tubercular disease in general, scrofula, and pulmonary consumption, we know, may be thus induced by a variety of causes which lie within the sphere of man's control.

#### HEADACHE—CEPHALALGIA.

In a multitude of cases headache is only a symptomatic affair, as in indigestion, fever, inflamed brain, apoplexy, etc. But in some instances it seems to be a matter of itself, and alone..

A *bilious headache* is that which occurs with an attack of biliousness. A *nervous headache* is that which nervous persons have, especially such as use tea and coffee. A *common headache* is that which may now and then happen to almost any one.

In some cases headache is a very troublesome disorder, making the patient almost continually wretched. It is in fact, no doubt, a chronic inflammation of the membranes of the brain in some cases.

*Treatment.*—The head-bath, head douche, and head affusion are invaluable remedies here. Of course, if there is general fever, *that* must be attended to in the proper way. In a bilious fit I should neither take nor recommend calomel, as Dr. Gully has done, because if the water-treatment is applied faithfully and in a manner suited to the case, it is quicker and more effectual than the poison metal; besides, it leaves no bad effects, as calomel *always* does. I would depend, even, upon fasting and water-drinking alone rather than resort to drugging in any such case.

In nervous headache, the rubbing wet-sheet, applied one, two, or

twenty times in a day, is an invaluable remedy. Many a person will be cured of periodical nervous headache if they will but abstain *wholly* from tea and coffee; I speak of what I know to a certainty in this thing. How many who read this will heed my advice, although they may believe in it to the fullest extent? Very few, I fear. I have more hope of the younger part of my readers.

In almost any case of headache, in which the patient is able to be up, the sitz and foot baths, cold, followed by exercise, are highly serviceable.

#### VERTIGO, GIDDINESS, DIZZINESS, OR SWIMMING IN THE HEAD.

There are two kinds of this affection: one in which objects appear to turn round; the other in which vision becomes nearly or wholly obscured. In some cases it announces an attack of apoplexy or epilepsy; in others it passes off without any material harm to the constitution.

*Treatment.*—We are to infer that in all such cases there is too much blood crowding into the head, and the object is to draw off the superabundance as soon as possible. We do not need to draw it *out of the system*, mark, but only from the head. If we simply bleed a man under such circumstances, we are very liable to make the actual difficulty worse. But if we rub him smartly over the wet-sheet, or in the tepid shallow-bath, taking care not to shake his head too much, and at the same time pour cold water upon the head, we both *derive* and *drive* the blood from the head and give tone to the brain.

Let the man who is troubled with vertigo heed well what he does. If he is a licentious man, or given to excessive venery in any way; or if he is a glutton or wine-bibber, let him beware!

#### DISEASES OF THE CEREBRAL SUBSTANCE.

*Abscess of the Brain.*—Cerebral abscess is liable to follow the inflammation caused by blows and other mechanical injury of the brain. It may come on very soon after the injury, as in two or three days, or it may be a long time in forming. It may be very small in extent, occupying only a small portion of the cerebral mass, or it may occupy a whole lobe or hemisphere of the brain. The pus also varies much in quality and appearance.

In some cases the abscess is found inclosed in a false membrane, which separates the diseased from the healthy portion of the organ, affording a striking example of the self-protective powers of the system.

*Ulcers of the brain* are not common, but they have occasionally been observed

*Softening of the Brain.*—There is what is called softening of the brain, without the formation of pus, although such cases are probably rare. The extent of cerebral softening is variable.

*White softening* is that in which the diseased part is of a white or milky appearance, and of a shining or satin-like appearance, without signs of either blood or pus.

*Red softening* is that in which blood is mixed with the diseased mass, giving it various degrees of redness, purple, brown, etc.

Whether softening of the brain is uniformly preceded by inflammation, is a point not yet settled among pathological writers. The red variety, it is believed, can not occur without preceding inflammation, while the white may. At any rate, it happens when no preceding inflammation can be detected.

There is no known means of ascertaining positively beforehand that either abscess or softening of the brain has taken place, except in those cases where the part is visibly exposed.

*Induration.*—As an effect, probably, of chronic inflammation of the cerebral structure, it sometimes becomes hardened and more brittle, so to say, than natural. In some cases it has been found nearly as hard as wax. The color varies in induration as in softening, being in some cases of a dark red, and in others of a pearly white, and still in others of intermediate grade.

*Gangrene.*—This is also found in the brain as the result of inflammation. It may take place in any part of the organ. "It is marked by a livid appearance and softening of the tissue, a fetid odor, and the presence of a greenish, sanious, very offensive liquid."

*Hypertrophy*, or an increase in the bulk of the brain, sometimes occurs. It is not water, blood, or any other liquid effusion by which the organ is enlarged in this disease, but the actual cerebral substance is abnormally enlarged. Hypertrophy does not always cause the bones of the skull to yield as they do in dropsy of the part, although such is sometimes the case. It is supposed that this disease has existed long, in some cases, without causing serious detriment to the general health.

*Atrophy, or Wasting.*—The brain sometimes recedes in some of its parts from the skull, the cavity being filled with a serous fluid. In some cases of atrophy the skull becomes depressed over the seat of the difficulty, giving a depressed appearance to the head.

*Tumors.*—Various morbid growths, which come under the general head of *tumors*, now and then find place in the encephalon. These growths may be of a comparatively unimportant nature at first; but after they attain a certain degree of development, they are supposed

to be alike malignant. Cerebral tumors tend to inflammation, suppuration, etc., and in the end to destroy life.

*Tubercles.*—As tuberculosis may affect all other parts of the system, so also the brain. When found in this part they are of spherical form, and of various sizes, from that of a mustard-seed to the size of a hen's egg. They are not so common in the brain itself as in the membranes.

As to the symptoms of the foregoing diseases of the brain, they are various, and generally so obscure that no distinctions can be made until a *post-mortem* examination reveals the facts. Not only is it impossible in most cases to distinguish before death what form of disease has attacked the cerebral structure, but also to ascertain whether there is a disease of the part. But if cerebral disease could be well diagnosticated, it would help us little, if any, in regard to the treatment. All that can be done in such cases is to aid the vital powers as much as possible by improving the general health.

#### APOPLEXY.

The word **APOPLEXY** is of Greek derivation, and signifies a "stroke," or "to knock down suddenly." The term is sometimes used to denote a rapid effusion of blood into any organ. It is more frequently applied, however, to an affection of the brain. The "fit" is characterized by diminution or loss of sensation and volition—bodily motion being more or less impeded, and by a comatose or lethargic state. Circulation and respiration continue, although the breathing is often stertorous or snorting. It is sometimes preceded by headache, giddiness, dimness of vision, loss of memory, faltering of the tongue in speaking, numbness in the extremities, drowsiness, stupor, and nightmare. At other times, without apparent previous indisposition, the person falls down suddenly, the countenance becomes florid, the face swells, the vessels of the neck become turgid and distended with blood, and the breathing difficult. The pulse is strong and full. The loss of sense and motion usually more apparent upon one side than the other. Elderly, fat, and short-necked persons are most liable to this disease. The immediate cause of apoplexy is a compression of the brain by blood in its vessels, by effusion of blood within its substance, or by water collected upon it.

It is very important when a man is found in a stupid condition, from which he can not be awakened like a healthy person, to know how to determine whether he is apoplectic or otherwise. It may be that the patient is only intoxicated, that he has been poisoned in some way, or stifled with a noxious gas. Not only is this kind of knowledge necessary to the physician, but useful to all who are willing to take it upon

themselves to think. Very often it is a long time before the physician can be had. What is to be done then?

Now to determine whether a patient that has fallen down in this way is really in an apoplectic condition, whether he has had an overdose of opium, or whether he is only "dead drunk," is not always so easy a matter. If a physician uses tobacco and tea and coffee, and especially if he is a tippler himself, he would not be any thing like so apt to smell the patient's breath as one who uses none of those narcotics. If there is an odor of liquor about the patient, there will be reason to believe that he is only intoxicated, and that in due time he will come out "all right;" or if we can find by the previous history of the case that he has been low-spirited, or has ever been suspected of being tempted to make way with himself, there will be reason to fear that opium or some other drug is the cause of the mischief. Otherwise the case will probably be found one of true apoplexy.

There is also another test. If we pour plenty of cold water upon the head, and wash and rub the whole surface well with the hands wet in cold water, and especially if there is a good degree of heat in the body generally, and we plunge the patient into cold water, we shall soon bring him to his senses if he is only drunk. If he has taken a poison, this kind of "ducking" will also be useful. But if we cannot arouse him by any such means, we shall have to fear the worst.

But in water-treatment it is not of so great consequence to determine at once what the disease really is, as it is in drug-treatment. If a mistake is made, the latter may prove highly dangerous and even fatal, while water, used with any degree of common prudence, could do no possible harm. Dr. Watson gives some excellent cases. He observes, in illustration of this position, in regard to the old methods:

"A man was found lying in Smithfield in a state of total insensibility, and motionless, except that he still breathed. He was carried into St. Bartholomew's Hospital. The house surgeon thought he smelt the smell of gin in his mouth, and thereupon very properly made use of the stomach-pump. By means of it he discharged a large quantity of ardent spirits; and in the course of a few minutes the man revived; shook his ears, and walked away. If the gin had been suffered to remain in his stomach, and if the remedies of apoplexy had been vigorously put in force, the absorption of the poison would have been thereby accelerated, and the debauch would probably have had a fatal termination. The same remarks apply still more urgently to the case in which opium or any other strong narcotic poison is lying in the stomach."

A second case is the following: "The father of the late Professor

James Gregory, of Edinburg (who used to relate the case in his lectures), was once called out very late in the evening to visit an old gentleman of that place. He found him in a completely comatose condition, his wife crying, and his household all plunged into grief and distress. They told him that the patient whom he now saw in a fit, had come home, and, upon the servant's opening the door to him, had fallen into the passage on his back, in a state of insensibility. Dr. Gregory learned, however, that he had been to the "Club," and he knew well enough that this club was composed of choice spirits, fond of their cups, although the gentleman's wife did not know as much. Therefore he ventured to express his 'hopes' to the wife that her husband was drunk—a charitable view of the case, at which she was extremely affronted and indignant. He persisted, however, in his opinion, and not long afterward the patient began to recover his senses. It turned out that he had partaken more liberally than the rest of the club, and was the first to be intoxicated. Two of his companions carried him home, quite incapable of motion; but not liking to introduce him themselves to his wife in that predicament, they placed him with his back against the door, rang the bell, and decamped. Of course when the servant came to open the door, his master tumbled senseless on the floor. I need not point out to you the ridicule which the physician would have brought on himself, and the damage he might have inflicted upon his patient, had he busily applied in this case the ordinary remedies of apoplexy."

It was remarked at the beginning of this article that the word "apoplexy" signifies "a stroke," or "to knock down suddenly." This definition is not strictly correct, inasmuch as the disease does not always come on in this sudden manner. Authors have pointed out three several ways in which it is apt to occur. In the first form of the attack, the patient falls suddenly, deprived of sense and motion, and lies like a person in a deep sleep; his face generally flushed, his breathing stertorous, his pulse full and not frequent, sometimes below the natural standard. In some of these cases convulsions occur; in others rigidity and contraction of the muscles of the limbs, sometimes on one side only; some die in a short time, much blood being found extravasated within the skull. Others die after a longer interval, and then there is serous effusion only, and of no great amount. In some that die early, no effusion of either blood or serum can be found. Some recover from the attack wholly, while others are left paralytic, which state may pass off altogether in a few days, diminish gradually, or remain through life.

In the *second* form of attack the disease generally begins with a

sudden pain in the head ; the patient becomes pale, faint, and sick, and usually vomits, and sometimes, but not always, falls down in a state of syncope, or resembling syncope, with a bloodless and cold skin, and a feeble pulse. This also is occasionally accompanied by some degree of convulsion. Sometimes he does not fall down, the sudden attack of pain being accompanied only by slight and transient confusion. In either case he commonly recovers in a short time from these symptoms, and is quite sensible, and able to walk ; but the headache does not leave him. After a certain interval, which may vary from a few minutes to several hours, or even much longer, the patient becomes heavy, forgetful, incoherent, and sinks into coma, from which he never rises again. In some instances paralysis of one side occurs, but perhaps oftener there is no palsy observed. Attacks of this kind are far more dangerous than the former, although they *appear* much less terrible to the uninitiated observer.

In the *third* form of attack there is a sudden loss of power on one side of the body, and frequently there is loss of speech *without* loss of consciousness ; or at most, with a very temporary suspension of this function. The patient is sensible, listens to and comprehends questions, and answers them in whatever way he can. Sometimes the paralysis passes gradually into apoplexy, and sometimes it passes off entirely, the patient recovering in all respects in a short time ; or the recovery may be more prolonged.

In a majority of cases of apoplectic seizure there are certain *warnings* that precede the attack, which, if properly heeded, might be made of the greatest advantage in warding it off. The patient feels giddy, experiences a sense of fullness in his head, and finds it hard for him to think. These feelings can perhaps be better imagined than described. Whenever they occur, the subject should use all possible endeavors to avoid the exciting causes of the disease.

*Predisposing Causes.*—The means by which apoplexy may be brought upon the system are as numerous as the causes of ill health. Suppose, for example, if a man persists in high living, drinking, smoking and chewing tobacco,\* and laziness, and at the same time be-

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\* Several authors of celebrity have asserted that tobacco sometimes causes apoplexy. Dr. Cheyne, speaking of the effects of snuffing, says, "he is convinced apoplexy is one of the evils in the train of that disgusting practice." Dr. Christison has met with an instance where the excessive use of snuff occasioned twice, at distant intervals, an attack resembling apoplexy, united with delirium. Dr. Hosack attributed "the late alarming frequency of apoplexy" in part to the use of tobacco. Dr. Clay, of Manchester, England, says that almost every one he had known of late to die of this dreadful disease were inveterate snuffers. Other authors have stated similar facts. We can readily understand how it is that this poison, if long continued, may induce the apoplectic state when we take into

comes full and plethoric, he should not blame his stars if he should have an attack before he is sixty. Nor is it persons with large heads, short necks, and fat bodies alone that get this disease. It is no uncommon thing for tall, thin persons, with pale faces and small heads, to die of apoplexy.

If people wish to avoid this awful disease, they should remember how "fearfully and wonderfully" the brain is made. Here, within the bony cranium, is confined this great cerebral mass which we call the brain. This brain, like the blood, is about ninety per cent. water—some say more—and of so delicate a make that one can thrust the finger through it as if it were so much custard! This same brain, too, has more blood in it than any other part of the body, and its capacious blood-vessels convey the blood through it at the rate of a hog's-head per hour. Now if a man overheats his blood by violent exercise; if he partakes frequently of alcoholic poisons, which always have a great tendency to mount to the brain; if he uses tobacco, which destroys the nervous energy in a remarkable manner; if he becomes a glutton, or lecherous, thus abstracting in a fearful way his vital power, and creating a determination to the head, he should not at all wonder if the blood-vessels of the brain become so weak that on some comparatively trifling occasion they burst! Any thing that weakens the nervous power; any thing that tends habitually to drive the blood unduly to the head may, in the end, lead to apoplexy.

*Exciting Causes.*—Any strong effort, such as lifting heavy burdens; straining; going too rapidly up stairs; walking too fast up a hill, or too far at a time; too much riding on horseback, or otherwise; blowing upon wind instruments; public speaking, especially in a crowded assembly; over-eating at meals; exercise in the hot sun; remaining in an overheated room; in short, any thing that tends to overheat or drive the blood to the head, may bring on an attack. Straining at stool has sometimes brought on the apoplectic attack, and persons have been found dead of the disease in the privy. Sexual intercourse has also, in some instances, proved the exciting cause of this disease. Violent emotions of the mind, as anger, may suddenly induce an attack.

*Treatment.*—First remove all constriction from the throat and neck; and second, take the patient, if possible, into the open air; at least have the windows and doors wide open, so that breathing may be aided as much as possible. Then place him in a position that the

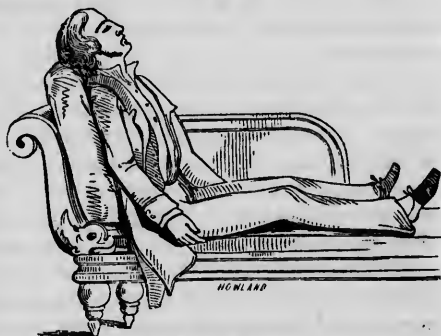
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account its powerful influence in deteriorating and destroying the sensorial power, and its tendency to drive the blood to the head.



head may be elevated, so that by gravity the blood may the more readily descend. See fig. 21. Take care that the head neither falls backward nor forward upon the chest. Frictions over the rubbing

Fig. 21.



CASE OF APOPLEXY.

water should be poured upon the head, without, however, letting the part lie too low. Cold-water clysters are also useful. The treatment should be perseveringly followed till the patient grows either much better or much worse. Afterward the patient should be managed according to the symptoms of the case.

The *rationale* of the above treatment will be readily understood. The great object is to arrest the current of blood toward the head, and to prevent the hemorrhagic tendency. The frictions act admirably in answering the first indication, and the cold upon the head the second; for the constricting power of cold in arresting hemorrhage is now well understood.

In case the circulation has become depressed, with pale and cold surface, we should of course proceed somewhat more cautiously in the use of cold. But even here the effort of wet-hand friction in rousing the dormant vital power will be found highly serviceable.

### COMPRESSION OF THE BRAIN.

In all cases of apoplexy the brain becomes more or less compressed, by the fluid or substance that presses upon it. In this place, however, I am to speak of compression in a surgical sense, that is, compression that is caused by extravasated blood arising from a wound, by fracture of the skull, or by suppuration upon or within the part.

The *symptoms* of compression of the brain are similar to those of apoplexy: there is insensibility; a slow, laboring pulse; stertorous breathing; skin often hot and perspiring; retention of urine; involun-

tary discharge of the feces ; dilated pupil, and palsy, but rarely confined to one side.

The *symptoms of compression from extravasated blood*, according to Dr. Druitt, show themselves in the following manner : The patient receives a blow, and becomes stunned and insensible from the concussion, with extremely feeble pulse and cold skin. After awhile he recovers his senses ; but again, in an hour or two, he becomes sleepy, confused, and insensible, with slow, stertorous breathing, slow pulse, and dilated pupils. These symptoms closely correspond with those of that form of apoplexy in which the patient feels an acute pain in the head, caused by the bursting of a blood-vessel, and becomes sick and faint. Then he recovers his senses—but shortly afterward, as the extravasation from the ruptured vessel increases, becomes quite stupid.

*Treatment.*—If there is no sign of fracture of the skull, the case should be treated like that of apoplexy, the object being to avoid inflammation, and procure absorption of the blood. If the skull has been broken, the surgeon must be called, in which case trepanning will probably be found necessary.

#### CONCUSSION OF THE BRAIN.

The difference between concussion and compression of the brain is obvious. Concussion, in a surgical sense, signifies “an interruption of the functions of the brain, induced suddenly by mechanical injury, and not necessarily attended with organic lesion.”

*Symptoms.*—In ordinary cases the patient lies for a time motionless, unconscious, and insensible. If aroused and questioned, he answers hastily, and instantly relapses into insensibility. After a time he moves his limbs, as if in an uneasy sleep, and vomits, and frequently recovers his senses immediately afterward, but remaining giddy, confused, and sleepy for some hours. In the more severe cases, the patient is more deeply insensible, the surface pale and cold, the features ghastly, the pulse feeble and intermittent, or perhaps wholly wanting, and the breathing slow, sighing, and at intervals only. Vomiting does not happen in very slight or very severe cases ; its occurrence is, on the whole, favorable.

Concussion or stunning of the brain does not often prove fatal if the skull has not been broken, and no blood-vessel ruptured within it. If the pulse and respiration become very feeble, and continue so for some hours, the case is an unfavorable one.

“In concussion, the insensibility comes on *immediately* after the accident ; in compression, it *may* come on after an interval. In concussion the pulse is weakened : and the greater the insensibility the weaker it

will be ; in compression, the pulse *may be* full and hard, and the skin hot. Stertorous breathing is rare in concussion, frequent in compression. The pupil in the former is variable, sometimes dilated, but yet in severe cases insensible to light ; in compression, it is almost always dilated and insensible. The rise of the pulse on any exertion is another distinctive symptom of concussion."

*Treatment.*—The objects are, first, to arouse the patient from his lethargic state ; second, to prevent inflammation, and, third, to restore any faculties that may remain impaired.

According to the best surgical practice, if the depression is very great, the patient is allowed to recover of himself, because if there is laceration of the brain, stimulants would increase the effusion of blood within it. In less severe cases warmth may be applied to the surface, but ammonia and other stimulants are better avoided in all cases. A moderate degree of wet-hand friction followed by the application of warmth will be useful.

A few years ago it was common, and still is in some parts of the country, to bleed the patient in all cases of stunning as soon as possible. Now, according to the best authorities, bleeding, if employed during a depressed state of the circulation, is liable to induce epileptic convulsions, and perhaps death.\* After reaction has taken place, the pulse having become hard and the skin hot, it is the practice to bleed ; but even here it is not necessary, for with cold water we can easily control these symptoms and ward off inflammation a thousand times better than can be done by the lancet and drugs. In a few years more it will be thought as unnecessary to bleed after reaction in these cases as is now thought dangerous to bleed before it.

After the more immediate effects of the concussion have passed off, the patient must yet be very careful to avoid all fatigue, excitement, and intemperance of every kind. To remove headache, giddiness, deafness, buzzing in the ears, squinting, loss of memory, and other effects of concussion, a course of tonic water-treatment should be regularly persevered in. The rubbing wet-sheet will prove a highly useful measure ; but long-continued wet-packs, as the custom is, will drive the blood to the head, and thus be liable to make matters worse.

#### PARALYSIS—PALSY.

The word paralysis is of Greek origin, signifying either a partial or complete loss of sensation and mobility of a part. This definition, how-

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\* "In every case of insensibility, whether from disease or accident," says an eminent surgeon, "the vulgar clamorously demand that the patient should be bled ; but the surgeon must be very ignorant or very weak if he yields to their wishes."

ever is to be received with some restriction, because in a state of com or stupor there is a loss of motion and sensation for a time, but no paralysis necessarily.

No such thing as *universal* palsy can exist, because *that* would be instant death. But there is what may be denominated *general palsy*, in which nearly all of the muscles of voluntary motion become affected.

When one half of the body laterally is affected, the disease is called *hemiplegia*; when it is confined to the lower half, or to the two lower extremities, it is called *paraplegia*. When a single limb—the eye, face, tongue, etc.—is alone paralyzed, it is designated as *local palsy*.

Paralysis is said to be *complete* when the loss of sensation and mobility are entirely lost. But in the majority of instances, sensation and mobility remain in some degree. In such cases paralysis is said to be *partial*.

An attack of paralysis may come on slowly, or the reverse. Its invasion may be so slow and gradual that the individual can scarcely perceive it until it has become considerably advanced. In other cases it makes its appearance almost as suddenly as an electric shock. In some instances the patient does not know when he is attacked. An aged physician of this city, who was very active in his habits, and a chewer of tobacco, was attacked with paralysis of one side of the face, and the first he knew of it was when he rose in the morning and attempted to spit into the fire-place as usual, the saliva went off in another direction. On looking in the glass, he found that his mouth was drawn to one side, and his face paralyzed.

In some instances paralysis is intermittent, and comes periodically; but such cases are not common.

Paralysis has many causes. It may be induced by any thing that presses upon the brain or any considerable nerve. Division of a nerve, and disease or disorganization of any portion of the nervous system, may produce it. Sometimes, also, the disease occurs when there is no visible compression, division, or disorganization of the nerve. In such cases, all that can be said is, that the part is unfit for its functions. Mercury, lead, arsenic, tobacco, and other poisons, cause this kind of palsy. In other cases, we are not able, either before or after death, to determine what has been the effects of these agents upon the nerves. Paralysis is the only symptom of which we can speak positively.

In some cases of loss of motion it may be difficult to determine whether the part is laboring under true palsy or under a chronic inflammatory disease of a gouty or rheumatic kind. The two affections are doubtless sometimes combined. It is believed that, in consequence of rheumatism in the course of a nerve, paralytic symptoms may be pro-

duced in the parts supplied by its ramifications; and that the same disease may partially paralyze the nerves of the part in which it has long existed. These cases have by some been designated by the name of *rheumatic palsy*.

*Hemiplegia*.—That form of paralysis called *hemiplegia*, not unfrequently follows an attack of apoplexy. It may also be followed by this latter disease; that is, while apoplexy sometimes becomes hemiplegia, hemiplegia is sometimes followed by apoplexy. The disease in the brain may at first be but slight, causing only hemiplegia. After it goes on for a time it becomes worse, and produces likewise apoplexy. Hemiplegia is the most common form of paralysis, and occurs most frequently on the left side.

*Symptoms*.—In a well-marked case of hemiplegia, the symptoms are as follows: "The limbs of the affected side, if raised, fall by their own weight; the face of the same side is relaxed and void of expression, and drawn to the sound side; the tongue, when protruded, is thrust toward the palsied side; the speech is either lost, or it is thick, muttering, and unintelligible. In rare instances, the mouth is drawn to the affected side, and the tongue protruded toward the sound side. The loss of power is sometimes accompanied by a loss of sensation, but in a few instances with heightened sensibility; the temperature of the affected side is generally much lower than that of the sound side, but occasionally it is raised above it. The mental faculties are sometimes unimpaired, but they generally suffer, as is shown by impaired memory, confusion of thought, loss of power of attention, change of character, irritable temper, depression of spirits. The pulse is often infrequent, but sometimes above its usual standard; the respiration also is slow, and the bowels generally inactive. If the patient does not speedily recover, the palsied limbs shrink and grow cold; if he recovers, the leg commonly first regains its power. When the disease is partial, the arm is more commonly affected than the leg. If the power of the limb is merely impaired and not lost, the arm will be raised with difficulty, and often not without the assistance of the other; the hand can not grasp firmly; the leg will be dragged after the sound limb; and, in walking, the patient will be very liable to trip."

*Prognosis*.—As to judging of the prospect of a cure in such a case, we are to take into account the severity of the attack, age and constitution of the patient, and length of time the disease has been present. In a recent case, and with other favorable circumstances, a cure may be hoped for. A return of sensation, a sense of tingling, and an increase of temperature are favorable omens.

*Paraplegia*.—This, like other forms of paralysis, may come on either

gradually or suddenly. The origin of paraplegia is to be looked for usually in some trouble or lesion in the spinal cord. Cases arising suddenly mostly come from some wound or injury of the spinal column. Caries of the vertebræ, relaxation of the spinal ligaments, and various diseases of these parts may give rise to it; so, also, wet and cold, intemperance, solitary vice, and other sexual abuses. In some few cases it is connected with trouble in the head.

*Symptoms.*—There is weakness of the lower extremities, a sensation of heaviness, stiffness, numbness, tingling, formication, and an awkward straddling movement when the patient walks. If the attack does not let off with these symptoms, they are apt gradually to increase till the bladder and rectum become paralyzed, and the patient wholly unable to walk. The paralysis is now said to be *complete*.

In this state of things, great care and attention are necessary in the management of the patient. The urine becomes highly ammoniacal, thick, and dark colored, and is very much prone to form calculus in the bladder. It should be drawn off frequently with the catheter, provided this measure is necessary, and the greatest care should be observed in seeing that he uses only pure soft water in both cookery and drink. Hard water will tend much to aggravate the evil. The patient, from being so much confined to his bed is apt to get sores upon the back and sacrum. Hence, too great pains can not be taken in changing his bed often, and guarding most scrupulously against uncleanness in every form.

In recent cases of paraplegia, the patient being of good constitution and not too old, a cure may be expected. If the spinal affection is a severe one, the prospect is more unfavorable. Those cases arising from intemperance and sexual abuses are particularly obstinate.

*Paralysis of the face.*—*Symptoms.*—In these cases the face is drawn to the sound side, causing the well side to appear shorter and narrower than the paralyzed side. The expression of countenance is peculiar; and if the patient is desired to close his eyes, that on the paralyzed side is either partially closed or wide open, while that on the sound side is firmly shut; if he attempts to spit, the saliva shoots off in a sideway direction out of the sound side; if he tries to blow out a light, the same phenomena is observed; if he speaks, laughs, cries, sneezes, or coughs, the deformity is increased, the sound side being thrown into contortions, while the paralyzed side remains the same.

This disease is sometimes caused by the pressure of tumors under the ear, and by wounds and surgical operations. In other cases it is often curable in the course of a few weeks, being taken at the very first.

Dr. Marshall Hall has given several excellent illustrations of facial paralysis, which I here transcribe.

Fig. 22



Fig. 22 represents hemiplegic paralysis of the face; the eyelids of the paralytic side are closed, but less firmly than those of the left.

Fig. 23.



Fig. 23 represents a similar affection in an infant: its mother observed, "It laughs and cries on the *right* side, and can not close its left eye"\*

Fig. 24.



Fig. 24 represents the seventh or facial nerve compressed by a tumor under the ear; the orbicularis is paralyzed, and the patient is incapable of closing the eyelid.

\* Some have asserted that pictures or cuts of an unpleasant or revolting kind should not be inserted in a work designed for the popular eye, because, as it is said, women who are pregnant are apt to see and dwell upon them, by which the child may become marked or deformed. But this is an error. Dr. William Hunter used to declare in his lectures, that he experimented in a lying-in-hospital upon two thousand cases of labor, to ascertain this point. His method was as follows: As soon as a woman was delivered, he inquired of her whether she had been disappointed in any object of her longing, and what that object was? If her answer were Yes, whether she had been surprised by any circumstance, that had given her an unusual shock, and of what that consisted? Whether she had been alarmed by any object of an unsightly kind, and what was that object? Then, after making a note of each of the declarations of the woman, either in the affirmative or negative, he carefully examined the child; and he assured his class that he never, in a single instance of the two thousand, met with a coincidence. He met with blemishes when no cause was acknowledged, and found none when it had been insisted on.



Fig. 25



Fig. 25 represents a case in which the countenance is drawn to the right side, as in the foregoing cuts; but it is the eye of the *same* side which can not be closed. It is distinguished by this circumstance. In the former representations there is *paralysis* of the facial nerve of the left side. In this there is a *spasmodic* affection of that nerve on the right side.

*Mercurial Palsy—Mercurial Tremors—The Trembles—Shaking Palsy.*—Gilders, miners, thermometer and barometer makers, and all others who are much exposed to the fumes of mercury, are liable to this disease. Even those who undergo mercurial frictions for medicinal purposes may have it. "It is not merely long-continued exposure to mercurial preparations," says Dr. Christison, "that causes the shaking palsy; a single strong exposure may be sufficient; and the same exposure may cause tremor in one and salivation in another." Professor Hardinger, of Vienna, mentioned to Dr. Christison an accident which happened to a barometer-maker of his acquaintance, illustrating both of these statements. "This man and one of his workmen were exposed one night during sleep to the vapors of mercury from a pot on a stove, in which a fire had been accidentally kindled. They were both most severely affected, the latter with salivation, which caused the loss of

all of his teeth ; the former with shaking palsy, which lasted his whole life."

*Symptoms.*—According to Niérat, a French writer on this subject, the disease may sometimes begin suddenly ; but in general it makes its approaches by slow steps. The first symptom is unsteadiness of the arms, then quivering, finally tremors ; the several movements of which become more and more extensive till they resemble convulsions, and render it difficult or impossible for the patient to walk, to speak, or even to chew. All voluntary motions, such as carrying a morsel to the mouth, are effected by several violent starts. The arms are generally attacked first, and most severely. If the man does not now quit work, loss of memory, sleeplessness, delirium, and death ensue. But as the nature of the disease renders working almost impossible, he can not well continue ; and in that case death is rare. The concomitant symptoms of the trembling are a peculiar brown tint of the whole body, dry skin, flatulency, but no colic, no disorder of respiration, and, except in very old cases, no wasting or impaired digestion. The pulse is almost always slow, a circumstance that often happens when the system is extensively affected by the mercurial poison.

*Paralysis agitans* is another kind of shaking palsy, which is to be distinguished from the above disease. In the latter the trembling continues, even when the limbs are supported, which is not the case in mercurial palsy. The attack comes on gradually, with weakness and trembling of the hands and arms, but it sometimes begins in the head, extending by degrees over the whole body. At length the trembling becomes more and more persistent ; and when the patient attempts to walk, "he is thrown on the toes and fore part of the feet, and impelled, unwillingly, to adopt a running pace, being in danger of falling on his face at every step." "In a still more advanced stage the shaking continues during sleep ; the patient can not carry food to his mouth ; mastication and deglutition are performed with difficulty ; the agitation at length becomes so violent as to prevent sleep ; the body is bent forward, with the chin upon the sternum ; articulation is impaired or entirely lost ; the urine and feces pass involuntarily, and coma and slight delirium close the scene."

*Palsy from Arsenic.*—This is now and then caused in medical practice. It happens mostly as a secondary effect of the poison, occurring generally in the extremities. As with palsy from other metallic poisons, cases of recovery have been known ; two of this kind have fallen under the author's notice, the cures taking place slowly, and without medical treatment of any kind. Many of these cases are doubtless incurable.

*Lead Palsy.*—The paralysis arising from lead is of a peculiar kind. It may be more or less complete. It may come on in connection with lead-colic, but is more apt to happen after the latter has passed off. It affects chiefly the upper extremities, and is attended with extreme emaciation. The attack is preceded by a numbness and tremor of the parts affected; the loss of power and sensation being most remarkable in the muscles which supply the thumb and fingers; when it is considerable, the hands are constantly bent, except when the arms hang down loosely at the sides; the hands then dangle loosely when the patient moves, and he is obliged to raise one arm by the help of the other; there is diminished heat, but seldom loss of sensation in the affected parts. This is the most common form of lead palsy, but the disease may attack also other parts.

It is important to remember that in this kind of palsy there is in many cases to be observed a blue or metallic line on the gums next to the teeth. Plumbers, oil-painters, glaziers, enamel-card makers, and all others working in lead, are subject to it.

This disease is in general very difficult of cure. A long course of suitable water-treatment, however, will suffice to effect a restoration in some cases.

*Palsy of the Insane.*—Recently several of the French writers have been giving attention to the subject of palsy as connected with insanity. According to their observations, insane persons do not often become paralyzed, unless above the age of thirty-five. The first symptoms noticeable relate to the organs of speech—the patient stammering, pronouncing words roughly, with a tremulous motion of the lips and tongue. Afterward the extremities become weakened, first the lower, and afterward the upper. At length he becomes unable to move, being confined to his bed; the urine is passed involuntarily, and the fecal discharges pass off in the same way; ulcers of a gangrenous character occur, and yet the organic actions go on so well that the patient often lives for years in this situation. But at last the vital powers give way, death closing the scene. Dissections show that in almost all cases of this kind of palsy there is either hardening or softening of the substance of the brain.

*Treatment of Palsy generally.*—We can not expect that a paralytic or his non-medical friends can do much in severe cases of paralysis. In so formidable a disease the best possible professional advice should be obtained and followed to the letter; and even then it must be admitted that all efforts at restoration will, in many cases—and perhaps most—amount to little other than a partial help.

In the first place, all of the known causes of the disease should, as

far as possible be averted and removed. In no disease whatever is this advice more important.

In the second place, *every thing should be done that may be to improve the general health.*

If the case is a recent one, it is to be treated according to the symptoms as they present themselves. If there is febrile action in connection with the attack, this is to be combated on general principles. We must, however, in all cases use the milder forms of treatment, because there may be great and hidden mischief in the brain or spinal marrow, in which case powerful applications of water would be very liable to cause more harm than good, and might easily kill the patient outright.

With reference to the local parts, a great deal of friction should be used. It is not well to rub the skin off from the part, as is often done when dry friction is applied. Wet hand-rubbing is always to be preferred, since it is far more tonic than the dry, and does not injure the skin. A wet towel or other cloth may be placed about the part—the arm, for example—and rubbing practiced over it as we do in giving the rubbing wet-sheet. This latter application is likewise useful in these cases for its tonic effect upon the system generally. Blisters, mustard-draughts, and the like, accomplish little if any good in this disease.\*

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\* That a very simple treatment is sufficient sometimes to cure paralysis, appears from the following case that was treated by Priessnitz, and given by Dr. Edward Johnson in his first work on Water-Cure :

“Herr Regenhart, of Vienna, had suffered for many years from nervous disease and severe dyspepsia. Three years since he had a paralytic seizure of the right half of the body—not severe—and from which he recovered. Six months afterward he had a second attack—more severe—from which, however, he partially recovered. Four months later he had a third attack, and afterward a fourth and fifth, the intervals between the fits becoming shorter and shorter, until they returned every fortnight. His right leg and arm now became nearly useless. He was advised to try the baths at Toplitz, which he did, but without any good result. He returned to Vienna; he took the best advice which that capital could afford, but entirely without benefit. One of his physicians at last, with a candor and honesty which did him honor, confessed that he believed his case to be beyond the reach of any ordinary medical treatment, and recommended him to try the water-cure. He came to Graefenberg in company with my friend Mr. Niemann, who was also going to Graefenberg on his own account. He arrived there in May, and was then in his sixtieth year. He was immediately put under a very mild treatment (merely an *abreibung*, rubbing the head with a wet cloth, and a *coph-bath*). In six weeks he had crises, but (which is very remarkable) only on the side affected. Not a single pimple appeared on the sound side. When the crises appeared, he took *leintuchs* with *abgeschrecktes-bath*. No cold-bath, no *douche*, no *sitz-bath*. He continued to have crises till October (five months). He then left perfectly recovered, never having had a single attack after he commenced the treatment. His friends at Graefenberg have since received two letters from him, perfectly well written by that same right hand which was paralyzed and useless when he first came to Graefenberg, and which had been to him nearly a profitless member for the three previous years.”

As for the use of internal medicines, such as arsenic, opium, mercury, iodine, strychnia, cantharides, oil of turpentine, etc., for the cure of palsy, I think the time is not far distant when no sane man would think of it. Such drugs never cured a case, and in the nature of things can not.

*Electricity and electro-magnetism* have been favorite remedies with some, and I doubt not have effected cures of palsy in some cases. These processes are, however, tedious, requiring in most cases more time than the patient is willing or able to devote to them. When electricity shall have become fully understood as a remedy for disease, I have no doubt it will be found a valuable aid to water-treatment in this disease.

Most persons who have paralysis, if they attempt to treat themselves by water do too much, and so in the end make themselves worse. Too often the same is true in the establishments; the physician advises too much treatment, thinking that because he has a strong disease to grapple with, he must bring the most powerful of the hydro-pathic appliances to bear. But it should be remembered that *overdoing* is worse than doing nothing at all; and that we may make a course of treatment a powerful one *by repeating the applications frequently*, although of a light nature. Priessnitz has cured paralysis in old men by abreibungen and the head-bath alone.

For the encouragement of those who may be afflicted with this disease, it may be stated that instances have now and then happened in which the disease has ceased spontaneously after a time. But it should be remembered that in all cases where a cure is effected, either by force of nature, or by nature and treatment combined, the attack is liable to return again and again, it may be. A knowledge of this fact should make those interested exceedingly cautious and vigilant in relation to all matters pertaining to the preservation of health.

The powerful effects of the imagination in removing even so fixed a disease as palsy, was strikingly exemplified in a case that happened under the observation of Sir Humphrey Davy. At a time in early life, when he was assisting Dr. Beddoes in experiments on the inhalation of the nitrous oxide, Dr. Beddoes having inferred that this powerful excitant must be a specific for palsy, a patient was selected for trial, and placed under the care of Davy. Previously to administering the gas, a small thermometer was placed under the tongue of the patient to ascertain the temperature. The paralytic man, wholly ignorant of the process to which he was to submit, but deeply impressed by Dr. Beddoes with the certainty of its success, no sooner felt the thermometer between his teeth than he concluded the talisman was in opera-

tion, and in a burst of enthusiasm declared that he already experienced the effects of its benign influence throughout his whole body. The opportunity was too tempting to be lost. Davy did nothing more, but desired the patient to return the following day. The same ceremony was repeated; the same result followed, and at the end of a fortnight he was dismissed cured, no remedy of any kind, except the thermometer, having ever been used. Thus much for the effects of the imagination and the confidence of the patient in the remedy employed.

### CRAMP.

Cramp consists in the involuntary contraction of a muscle, attended usually with a good deal of pain, which sometimes leaves the part lame and sore for days, and perhaps weeks. It affects the muscular fibers more especially; but the pain being of a nervous character, and the affection being communicated purely through the nervous influence, it is classed among diseases of the nervous system.

It may affect almost any muscular part of the body, whether external or internal; but it occurs most frequently in the calf of the leg, and perhaps next in the sole of the foot. Ordinarily it is only a symptom of some other affection or condition of the system, such as cholera, cholera morbus, and other disorders of the stomach and bowels. In the present instance we are to speak of it as a seemingly distinct affection.

*Symptoms.*—Cramp is usually sudden in its attack, and it is far more apt to occur in the night time than the day. It may last only a few seconds or minutes only, or it may be prolonged for an hour or more. Ordinarily, however, it is only of short duration. It passes off sometimes slowly, but oftener in a short period, the muscular fibers relaxing them as suddenly as the attack comes on.

*Causes.*—It is not always easy to ascertain the origin of this affection. We know, however, that great muscular exertion, on the one hand, may cause it, while on the other, indolence and too little activity seem to favor its production, as in the case of females, who are more subject to it than those of the opposite sex. Pregnancy is well known to favor it; and those who suffer severely from piles, and other diseases of the rectum and lower bowel, are liable to cramps. Any thing that tends to neuralgia appears also to act in many cases as a cause of this affection. Like convulsions, it no doubt often has its seat in disorders of the alimentary canal. Too great exposure to cold, as in the case of swimmers, often acts as an exciting cause; and it has been said frequently that drowning has taken place in consequence of the person being seized by it while in the water. We know, also, that

those who are overtreated in the hydropathic method are liable to be troubled with it at night. Too great warmth in bed, as well as excessive cold, evidently in many cases favors it. In some cases it may be brought on voluntarily by putting the muscle on the stretch.

*Treatment.*—The first thing manifestly, where it is possible, should be to remove the cause. Friction upon the part affected is more generally resorted to; and if it can be perseveringly practiced for a minute or two, it seems to help off the attack. Friction with the hand wet in cold water is evidently better than the dry application, or that by means of spirits, ointments, etc., which have sometimes been resorted to. The wearing of wet bandages at night upon the part liable to be affected will often, at least, ward off the attack. Some are in the habit of rising suddenly whenever they find cramp coming upon them, and it is asserted that powerful muscular exertion, and especially extending the muscles of the limb as powerfully as possible, is often sufficient to bring immediate relief. The remedy which has gained repute with some, by forcibly compressing a roll of brimstone in the hand till it cracks, can act only through the imagination, or on the principle of muscular exertion.

#### TETANUS—LOCK-JAW.

*Tetanus*, or *locked jaw* (from a Greek word signifying “I stretch”), “is a disease in which the muscles are in a state of rigid, lasting contraction, with paroxysms of brief and painful spasm, alternating with irregular intervals of more or less complete relaxation, without coma or any essential disturbance of the mental faculties.”

The tetanic condition has been named according to the obvious effects of the spasm. When the body is bent forward it is called *emprosthotonos*; when backward, *opisthotonos*; when to one side, *pleurosthotonos*; and when the jaws are closed, *trismus*. But these are only different forms of the *same* disease.

Tetanus, arising from a wound or other local injury, is said to be *traumatic*; this is also denominated *symptomatic* tetanus. When it exists independently of any other known pathological condition, it is *idiopathic*. It is doubtful, however, whether the disease ever happens as an entirely distinct affection; but when it is not caused by a wound or injury, the cause must, in most cases at least, be very obscure. By common consent, in such cases, it is said to be idiopathic, although the term is not a strictly correct one. All cases which are not clearly *traumatic* are called *idiopathic*.

Tetanus may happen to persons of almost any age. It may attack infants soon after birth, in which case it is called *trismus nacentium*.

It is not so common in old age as in middle life. It is much more common with males than females.

Tetanus is said to be both *acute* and *chronic*; but this is hardly correct, according to the proper signification of these terms. It varies, however, greatly as to duration and degree. It may be a very severe and dangerous affection, or the attack may be so slight as hardly to amount to a diseased condition. It may end in death in a few hours, or it may continue for a week or for several weeks, the patient in the end getting well. The greater number of deaths are found to take place between the first and fifth days; and it is said that very few who survive the eighth day sink under the disease. As to its course, it may be quite continuous, or remittent, or intermittent. The continuous form is the most dangerous.

*Trismus Nacentium*.—Tetanus of the young infant is an exceedingly fatal form of the disease, and is much more common in hot than in temperate latitudes. It is said to be much more common among blacks than whites, and is exceedingly destructive among certain classes of the population of the West Indies and portions of the Southern States. In some situations, we are informed, that one half of the colored infants born die of the disease, while scarcely a white child is attacked. The seizure takes place usually within the first week, but has seldom been known after the end of the second week. It has usually been ascribed to irritation caused by cutting the umbilical cord, and it is said that ulceration of this part is common in those instances. According to the facts of experience in other cases, we may infer that if the water-dressing were used at the navel, as it should be in all cases, the disease would be prevented. A bad state of the infant's constitution, arising from the hot and foul air in which it has been born, and by which it has been influenced while in the fetal state, through the system of the mother, Dr. Wood considers as an essential predisposition. It is a singular fact, that this form of the disease is seldom, if ever, cured in the South. Many extensive practitioners, who have seen a good deal of it, have said that they never knew a case to recover; but experience proves that attention to cleanliness, ventilation, and a better method of managing the infant has caused a vast diminution in the prevalence of the disease.

*Symptoms*.—The attack may come on suddenly and with great violence; but it more commonly occurs in a gradual manner. In the form of lock-jaw, a slight stiffness is at first perceived in the back of the neck, which gradually grows more severe until it becomes both difficult and painful to move the head. At the same time there is an uneasy sensation at the root of the tongue, some difficulty of deglutition,



a tightness about the chest, with a pain at the extremity of the sternum, shooting into the back. The stiffness in the jaws then comes on, and increases, in bad cases, to such a height that the teeth can not be opened to admit even the smallest particles, constituting real lock-jaw.

In case the disease extends itself farther, the spasmodic action becomes more and more frequent and general, and it now affects not only the muscles of the neck and jaws, but those of the whole spine, so as to bend the body very forcibly either backward, forward, or laterally, the patient suffering at the time of the spasms the most indescribable torture. The disease thus progresses till all the voluntary muscles become affected, and may be said to be in a state of most rigid spasm. In the more common form of the disease, that in which the spine is bent backward, if the patient is placed with his back downward, he can touch only his heels and occiput to the bed, his whole frame being as stiff almost as a wooden statue. The arms, likewise, are as stiff as the rest of the body. In this stage of the disease, the patient sometimes darts his tongue out convulsively, while at the same time his teeth snap together in such a way as to wound it in the most dreadful manner, if nothing is interposed between the teeth.

The violence of the spasms in tetanus is sometimes so powerful as to rupture muscular fibers, and even the whole of a muscle or tendon, and in some cases the joints have been dislocated and the bones broken by the unnatural force. Even the teeth have been fractured by the action of the masseter muscles. Such are, of course, extreme cases, happening only seldom.

It has been customary with writers to say that this disease is not attended with febrile action. When the paroxysms are violent, the pulse becomes very frequent, however, and the animal temperature has been found to rise as much as  $12^{\circ}$ , which is as high as it has ever been observed in fever. At the same time the patient sweats profusely in consequence of the pain and suffering he undergoes.

The mental faculties are in general clear in this disease; there is neither stupor nor delirium, nor cephalic trouble of any kind, except, perhaps, at or near the close of fatal cases, in which powerful medication has been resorted to. Strong opiates are very apt to becloud the intellect, so that it would be strange if the mind did not wander toward the last when these had been resorted to.

*Causes.*—In cold and temperate latitudes, tetanus seldom occurs, except in the traumatic form, that is, from wounds or other external violence. It is a most singular fact, that it appears to be of little consequence whether the wound is trifling or severe. A mere pin scratch, as it were, may cause it, while the most severe wound or surgical operation

has no such effect. Such wounds as those produced by needles in the fingers, a splinter under the nail, stepping upon a rusty nail, small wounds about the joints by sharp-pointed instruments, the extraction of a tooth, a fish bone in the throat, insertion of an artificial tooth, the cutting of corns, and the insertion of a seton, cupping, fractures, dislocations, and, in short, wounds of any name and variety may give rise to this affection. Wounds about the joints, and especially those that involve the more tendonous parts of the feet and hands, are apt to cause tetanus. Punctured and lacerated wounds are more apt to cause it than those made with a clean cut. The interval between the reception of the wound and the coming on of tetanus varies; and if we are to take the statement of authors as facts, it may be only a few minutes, hours, several days, and even weeks. It is said that the attack comes on most commonly between the fourth and fourteenth day after the injury. After the end of three weeks, no tetanus supervening, the patient may be considered safe. The longer the period before the attack, the less severe will it be, and the more likely the patient to recover.

A good deal of attention has been given to the state and appearance of the wound in this disease. Dr. Rush was of the opinion that it was without inflammation. Many are of the opinion that tetanus is equally liable to happen in all conditions of the wound, "whether healthy or unhealthy, before or after suppuration, in the process of healing or after the healing has been completed; and the circumstance of the occasional vicious state of the wound is rather ascribed to the same constitutional tendencies which lead to tetanus, than considered as a cause of it." But if we are to believe such a statement, what rule have we to go by, or what hope in preventing it? One thing we are certain of, that there is no known case of tetanus where water-treatment has been practiced from first to last in the management of the wound; and there is, in abundance, the strongest testimony in regard to the efficacy of water in warding off these terrible attacks. This is one of the most remarkable, and at the same time most instructive facts in the whole range of the medical art.

Besides those forms of local irritation already considered, there are various others which have been supposed to be occasionally the cause of tetanus. Ulcers, worms in the bowels, stone in the bladder, hardened fecal accumulations in the bowels, a dead fetus in the womb, and inflammation of the stomach and bowels have all been supposed to give rise to it. Terror has been supposed to cause it, and Dr. Rush has given a case in which it resulted from harsh, grating sounds. "Nuxvomica and its kindred substances," says Dr. Wood, "produce effects

which can not be distinguished from tetanus." By far the most common cause of the disease, when not arising from wounds, is exposure to wet and cold. Plunging into cold water when the body is both heated and fatigued, as also drinking cold water or ice-water under similar circumstances, is a common cause of tetanus in hot climates. Sleeping out upon the damp ground is a frequent cause of it. When tetanus occurs under the foregoing circumstances, it comes on usually within a short time after the exposure; and it is found to be more curable in such cases than when it occurs from wounds.

*Treatment.*—The results of the medical treatment of this disease afford another, among the lamentable proofs of the evils of drug-medication. Says Dr. Hooper, in his "*Vade Mecum*," "Narcotics and sedatives, as opium, morphia, hydrocyanic acid, digitalis, stramonium, tobacco, belladonna, hyoscyamus, conium, musk, and camphor, have all been given in enormous doses in tetanus, with very doubtful advantage." And again, "Mercury has been administered in large doses (in tetanus), so as to produce salivation, but it has only served to increase the sufferings of the patient." Dr. Hooper, the reader will understand, is one of the first among the standard authors of the old-school, and one of the most regular of the "regulars." It is a significant fact, then, that, after all the experimenting of ages with drug-poisons in this disease, the whole matter is empirical—guess-work only.

We will next look at some of the facts in the use of water as a remedy for tetanus. If we can first ascertain the *facts* in regard to the treatment of any particular disease, we can afterward deduce principles therefrom that will serve to guide us in the treatment.

One of the most striking cases, showing the beneficial effects of water in this affection, is given by Dr. Currie in his "Medical Reports." It is related in his own words:

"George Gardner, a soldier in the Staffordshire militia, was put under my care by his officers on the 20th of February, 1781. About a fortnight before, after severe dancing and hard drinking at a country wedding, in which he had been employed two days and nights, he fell suddenly into a fit, which lasted an hour and a half, during which his consciousness was abolished. On recovery, he was affected with slight twitchings, which gradually increased, and were afterward followed by fixed, spasmodic contractions in different parts of the body, but more affecting the left side than the right. He had, when I saw him, all the symptoms of tetanus. The head was pulled toward the left shoulder, the left corner of the mouth was drawn upward, the eyes were hollow, the countenance pale and ghastly, the face and forehead bedewed with sweat; but his most distressing symptom was a violent

pain under the ensiform cartilage, with a sudden interruption of his breathing every fourth or fifth inspiration, by a convulsive hiccough, accompanied by a violent contraction of the muscles of the abdomen and lower extremities.

"He felt on this occasion as if he had received an unexpected blow on the scorbiculis cordis. Before I saw him he had been bled, and vomited repeatedly, and had used the warm-bath, not only without alleviation, but with aggravation of his complaints. The first three remedies mentioned were used here in succession, viz., opium, mercury, and the cold-bath.

"He first took a grain of opium every other hour, afterward a grain every hour, and at last two grains every hour; but he grew worse and worse during the two days on which this course was continued.

"The spasms extended to the back and shoulders, the head was at times retracted, and the muscles of the abdomen partook of the general affection. Being no longer able to swallow the pills, he took no medicine of any kind on the night of the 22d, in the course of which general convulsions came on, and returned once or twice in every hour. The tincture of opium (liquid laudanum) was now directed to be given, and an ounce of the quicksilver ointment to be rubbed in on each thigh. In twenty-four hours he took two ounces and a half of the tincture, without sleep or alleviation of pain. The dose being increased, in the next twenty-six hours he swallowed *five ounces and a half* of the laudanum, a quantity which at that time was, I believe, unexampled. He lay now in a state of torpor. The rigidity of the spasms was indeed much lessened, and the general convulsions nearly gone; but the debility was extreme; a complete hemiplegia had supervened; the patient's eyes were fixed, and his speech faltering and unintelligible.

"As this young soldier appeared at the utmost verge of life, it seemed no longer safe to continue the laudanum, which had relieved spasm only in so far as it had brought on general paralysis. Intermitting this medicine, therefore, we gave small doses of camphor from time to time in a liquid form; but the chief attention was directed to supporting the strength by such nourishment as could be swallowed. Gruel, with a small quantity of wine, was ordered for him, though with much caution; for at that time I was not instructed with what safety and efficacy this last article might have been administered.

"For the next six days he seemed to revive; the general convulsions kept off, though the twitchings and convulsive hiccough continued. But on the night of the 1st of March he was seized, during sleep, with a convulsion as severe as ever; and this was followed by a

return of all his symptoms with their former violence. The jaws were indeed more completely locked than before, deglutition was become impossible, and the pain under the ensiform cartilage was so extreme as to force from the patient the most piercing cries. At this time the effects of the quicksilver ointment were apparent in the fetor of the breath, and in a considerable salivation. Had poor Gardner been a man of any rank, or, indeed, had he been surrounded by his family, it is most probable that we must now have abandoned him to his fate. But our proceedings, obstructed neither by the prejudices of ignorance, nor the weakness of affection, another and a last effort for his life was resolved on. Having heard that the cold-bath had been employed with success in tetanus, in the West Indies, particularly by Dr. Wright, of Jamaica, and Mr. Cochrane, of Nevis, and this practice corresponding with certain speculations of my own, I had recourse to it on this occasion with some little confidence. With the consent of his officers, Gardner was carried to the public salt-water baths of this town, then of the temperature of  $36^{\circ}$  Fahr., and thrown headlong into it. The good effects were instantaneous. As he rose from the first plunge, and lay struggling on the surface of the water, supported by two of his fellow-soldiers, we observed that he stretched out his left leg, that had been for some time retracted to the ham. But his head did not immediately recover the same freedom of motion, and therefore he was plunged down and raised to the surface successively for upward of a minute longer, the muscles of the neck relaxing more and more after every plunge. When taken out, we felt some alarm; a general tremor was the only indication of life, the pulse and the respiration being nearly if not entirely suspended. Warm blankets, however, had been prepared, and general friction was diligently employed. The respiration and the pulse became regular, the vital heat returned, the muscles continued free of constriction, and the patient fell into a quiet and profound sleep. In this he continued upward of two hours, and when he awoke, to the astonishment of every one, he got up and walked across the room; complaining of nothing but hunger and debility. The convulsive hiccough, indeed, returned, but in a slight degree, and gave way to the use of the cold-bath, which he continued daily a fortnight longer, and in less than a month we had the satisfaction of seeing our patient under arms, able for the service of his country."

Dr. Watson recommends the cold-bath in this affection. He remarks "that the application of cold water to the surface has, in many recorded instances, been of at least temporary benefit and comfort; and in the West Indies, where the disease is common, the cold affu-

sion still continues to be the most favorite expedient." Dr. Watson regarded that cold water is, however, chiefly serviceable in the idiopathic form of the disease. He did not consider plunging the patient into cold water the best form of employing it, but "to take the patient out of his bed on an extended sheet, pour cold water over his body, wipe him dry, and place him in another dry bed." "This," he observed, "will often, for a time at least, diminish the spasmodic action, and the patient will sleep comfortably after it."

Mr. Abernethy, in his lectures, related in his quaint way an instance in which cold affusion acted beneficially in the case of a horse. "The effect of cold, in diminishing excessive muscular action," he said, "was strikingly shown in the cure of a horse belonging to Professor Coleman, which had tetanus. The animal was slung, and carried out of the stable and laid on the snow, which was then on the ground, and he was covered over with snow also. A horse affected with tetanus is a curious sight; his legs straddle and become stiff; his ears are pricked up, and his tail sticks out. In this case, on the application of the snow, his ears sunk, his tail became pliant, and the rigidity of his muscles was removed. He was again taken into the stable, and the spasms returned." Mr. Abernethy maintained, that were he himself the subject of tetanus, he would desire to have the cold affusion tried.

Some have recommended for tetanus the use of ice upon the spine, a remedy which has been found eminently beneficial in convulsions. The ice should be applied by means of friction upon the naked skin up and down the spinal column, and over the whole region of the back. An alleged advantage of this method of applying cold is, that it does not inflict any severe shock upon the system which might be attended with an unfavorable effect in disturbing the reflex function of the spinal cord through its incident nerves.

Dr. Elliotson recommends what he calls "constant refrigeration" in tetanus. "There is a case," he observes, "mentioned by Sir James McGregor, in the sixth volume of the 'Medico-Chirurgical Transactions,' and also in his 'Reports of the Diseases of the Army in the Peninsular War.' It proceeded from a slight wound in the finger. The patient (a soldier of course) was carried in a bullock-car after the battalion to which he belonged in a severe state of tetanus, in the midst of pouring rain, which completely drenched him in the early part of the day, the heat being  $52^{\circ}$ ; and then they ascended the highest mountains in Galicia, the snow on the summit of which was knee deep, and there the temperature was only  $30^{\circ}$ . He was exposed in this condition from six o'clock in the morning till ten o'clock at night, and

arrived at his journey's end half starved from cold, but perfectly cured of his tetanus." Dr. Elliotson also mentions having stumbled on a similar case, published in 1827. A horse, which was in a state of tetanus, happened to be in a wet park, and was drenched with rain; precisely as was the case with the unfortunate man before mentioned, and the horse also did perfectly well. This author is led to believe, in view of these facts, that in a disease of violent excitement, as tetanus, the constant, not *sudden*, but *constant*, refrigeration, by means of a low temperature, united with moisture, is likely to be of great service. This, it need hardly be added, can be most admirably accomplished by means of cooling wet-sheets, the shallow-bath, dripping-sheets, and the like.

In February, 1847, I had the following case. Mr. Perry, of Orchard Street, cut his hand the week previous. Being a machinist by occupation, he thought his health had been injured by gases, and by verdigris flying off from copper in the form of dust. He had taken colds very easily. He took a cold in the wound, and it swelled prodigiously. He used poultices of different kinds, but it grew worse and worse. Very severe pain was experienced in the hand and up the arm (a nerve was no doubt wounded), and there was also constant pain in the back. He was very feverish and could get no rest. One evening he had himself placed in a wet-sheet, put on a large wet-girdle, wet bandages all about the arm, and the hand in water. This stopped the pain completely in the hand, and he appeared better in every respect. He sent for me, and I directed him to use, in addition to the hand-bath and the wet-girdle, the half-bath quite cold, but not the coldest, to renew his bandages often upon the arm, take the elbow-bath, drink water very often, eat no food for some days, or at most not until all pain and fever had subsided, and to take the half-bath as often as the pain in the back returned. The hand to be kept in cold water most of the time, enough to prevent all pain in that part. The next morning I found Mr. Perry decidedly better, the pulse at 80 instead of 100, as when I first saw him the previous evening. The hand was yet much swollen, and some days were required for this to be thrown off.

*Vapor-baths* have also been used beneficially in tetanus. Dr. Bell quotes Dr. Marsh, from the "Dublin Reports," volume four, as stating that he had used this remedy with success. Of three cases subjected to the vapor-bath, of the temperature of 90° Fahr., two recovered. In one of these calomel and opium, in succession, had failed to produce any effect; and in the other, ptyalism (salivation), induced by the two medicines conjoined, failed to mitigate the disease. These were the two recovered cases. In the first, Croton oil internally, and belladonna and oil of amber along the spine, were used at the same time with

the vapor-bath. The patients were kept in it four and even eight hours at a time. It should be remembered, in reference to these facts, that the vapor-bath was only warm. Hot vapor-baths have a very different effect, and are not at all to be recommended in this or any other disease.

Various authors have recorded the beneficial effects of warm-baths in this disease. The Germans have in some cases used the warm-bath with success. In Holland it has been a custom to immerse the patient in warm-baths of broth, in which he is kept for five or six hours, at the same time having opium administered to him. The warm-bath is doubtless a valuable remedy, but, in some cases of the disease, much benefit can not be expected from it. Used in alternation with the cold-bath, it is to be recommended. At the expense of repetition, I must here remark that the *warm-bath* must not be confounded with the *hot*, an error too often committed.

The great principle to be kept in mind in the treatment of this disease is, that tetanus is a *spasmodic* affection. The treatment, therefore, must be of the antispasmodic kind. The more powerful the remedy, the more effectual it will prove, provided it is not such as to injure or depress the vital force. Facts plainly prove that of all known antispasmodics, water is altogether the most powerful.

As to the methods of using it, due caution should be used. It is said, on the best authority, that patients have been killed by throwing two or three pails of cold water over the body, almost as quick as if they had been shot in the head. If a powerful measure is to be resorted to, it should be done when the paroxysm is at its height. Cold water has never killed a patient under such circumstances. It is only when the patient is in the opposite extreme of the disease, that a powerfully cold application proves so dangerous.

Plunging the patient into cold water, douching, and all applications that tend powerfully to shock the system, have often proved beneficial in quelling the tetanic paroxysm; but passive cooling—such as gives no severe shock to the system—is to be preferred. The shallow-bath, therefore, prolonged, and with wet-hand friction, is to be highly recommended. This is, in fact, the “great engine” of the hydropathic resources in such cases. Hydropathy, yet comparatively in its infancy, has not had time to assert its true merits in the treatment of convulsive diseases. There can be no doubt but that the prolonged shallow-bath, coupled with the proper amount of wet-hand friction, would have cured many and many a case of tetanus that has been lost in drug-treatment.

If I myself were a sufferer from this disease, I would have my body



powerfully rubbed in the shallow-bath as many hours as it might require to quell the spasm. I would also have cold water poured plentifully upon the surface; the cold plunge, and even the douche, if I could have it; but the great dependence would be upon *prolonged friction in the cold shallow bath*. The wet-sheet pack, the mild vapor-bath, the tepid and the warm-bath, as well as the sitting-bath and injections, freely and often used, should, it at hand, all come in for a share. But, as before remarked, the half-bath is the *great* thing. Surely we have no lack of resources in our "hydropathic materia-medica," as any one can here see.

In making the foregoing remarks, we have supposed the case to be a severe one. It should be remembered, however, that as the disease varies from a very slight to a most severe and terrible one, so should the treatment be made to vary accordingly. If a poor sufferer is so bent up with cramp of all his voluntary muscles that he can only touch his head and heels to the bed, be assured it is no boy's play to treat his case. To bring down such spasms as make a man's muscles hard and stiff as a board, is to be accomplished only by the most powerful means. If we know how to manage the more severe cases, the lighter ones will be no difficult task. As before remarked, it is in reference to the *great* emergencies that these remarks have been made.

It is wonderful to notice what an amount of medicinal substances, and even of poisons, may be given without apparent harm in tetanus. Thus, in one case related by Dr. Currie, the patient took one hundred and ten bottles of port wine in six weeks. In another instance mentioned by the same author, a favorite horse belonging to a gentleman was attacked, and being treated by wine he got well, but it took more wine than the horse was worth. It is a singular fact that the patient is never made drunk in this disease, however much of alcoholic stimulus he may take. Opium, too, in almost incredible amount has been swallowed in this disease. One case is on record of a lady who recovered, but who swallowed in twenty successive days upward of forty thousand drops of laudanum, which is at the rate of two thousand a day. These facts, and many more might be given, serve to give us some idea of what the system is able to undergo while suffering the gigantic torture of this disease. They serve also to show that we should not be timid in treating it. When the system is racked with such intolerable agony as that of tetanus, it is not easy to harm the patient even with so powerful an agent as cold water.\*

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\* Tobacco has been recommended as a remedy in this disease. If I myself had tetanus, and did not get along satisfactorily in other ways, I should be tempted to have a tobacco injection. This kind of poisoning, if not carried to a fatal extent, is preferable to that by

The medical art, it would seem, leaves no means of either pleasure or torture untried in the cure of disease. In traumatic tetanus it is not at all strange that amputation of the wounded part should have been recommended in extreme cases, when the measure is practicable. Thus, if a toe or a finger is the origin of the trouble, or even a larger extremity, it may be removed. But Dr. Elliotson asserts that the removal of the part is perfectly useless. After a long search for cases in scores of journals and medical books, he was able to find only one instance where the removal of the part appeared to be attended with the removal of the disease.

### HYDROPHOBIA.

If tetanus is a disease so terrible in its nature and effects as we have seen it to be, what are we to say of HYDROPHOBIA, that monster of maladies, which, according to all medical authority, has never yet in a single case been cured? Both nature and art, thus far, have failed in ever arresting this frightful disorder after its characteristic symptoms have declared themselves, except, perhaps, in a few instances in which cold water has been the remedy. Drugs of whatever kind have been proved to be only worse than useless in this appalling disease.

*Symptoms.*—It is a remarkable fact that the poison of a rabid dog does not in any way affect the wound through which the poison is introduced into the system. It heals, to all appearance, just as it would have healed in any other case of bite. So much for its character and appearance at the time; but after a period of from six weeks to eighteen months—the period of *incubation*, as it is called—the patient experiences pain or other unpleasant sensation at the place where the wound was originally inflicted; tingling, aching, coldness, numbness, or stiffness are experienced at the part; or it may become red and inflamed, or livid, break out with an eruption, or open afresh and discharge a peculiar fluid. In some cases, however, these symptoms either do not occur, or at least are not noticed by the physician or patient. It is possible, and on the whole probable, that some such sensations do occur in all cases, the patient not noticing them, because of the terror that comes over him in his anticipation of the appalling disease.

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mercury or any other mineral substance, the vegetable poison being much less permanent and persistent in its effects. I am by no means certain but that tobacco, properly managed, in the form of enemata, would do more good than harm, or, in other words, save life in some of these cases. This, however, is not saying that poison is better than water, a thing which I for one do not believe. That tobacco, as a medicine, is capable of saving life, I am convinced; but that it is better than water in any given case, I can not admit.

Soon after the foregoing symptoms occur, in a few hours or days, as the case may be, "wandering pains are felt in different parts of the body, the patient complains of stiffness of the neck and throat, and is restless, irritable, and drowsy; his spirits are depressed, and he is observed to sigh frequently and deeply; his sleep is disturbed with frightful dreams."

But the true nature of the case is first made evident by an unusual dread of liquids and an almost unmanageable difficulty in swallowing them. These symptoms go on increasing till both the sight and sound of liquids cause the greatest terror; and any attempt at swallowing is attended with the most painful sobbing and sighing, and convulsions, even, are thus caused.

At this stage of the disease, "there is," in the admirable language of Dr. Hooper, "a degree of irritability beyond description; the countenance expresses intense anxiety, alarm, and suspicion; the eyebrows are contracted; the eyes wild, staring, and glassy; there is intolerance of light and sound, urgent thirst, a parched tongue, a hot and dry skin, and painful efforts to vomit. The sufferer often screams vehemently, and talks in a loud, important, and authoritative tone; spits out the viscid saliva between his closed teeth, with loud and noisy strainings, not unlike the barking of a dog. In spite of these severe sufferings, the mind often remains unaffected to the last; but in other cases the patient lapses into wild delirium, talks incessantly and incoherently, and is in a state of the most distressing restlessness; the slightest motion or sudden change of position, a breath of air, a ray of light, a polished surface, or the slightest noise, will excite a sensation of suffocation and convulsions; delirium in some instances takes place, convulsions now become frequent, and the patient dies convulsed, exhausted, and asphyxiated."

This disease, in the human subject, usually lasts only from twenty-four to forty-eight hours. In some cases it has gone to eight or nine days.

As hydrophobia is much more frequently communicated by the dog than any other of the domestic animals, it is of great importance to know how to distinguish one that is rabid from those which are not. The popular notions that dogs dread water, and are to be known by running straightforward with their tail between their legs, are not correct. We have it on the best authority, that they not unfrequently swim rivers, and that they eagerly lap water in consequence of excessive thirst when mad. Dr. Wood gives a brief summary of the symptoms they present, as given by the best practical authors on the subject. The animal at first has an altered and, as it were, suspicious

look; is restless, and frequently changes his position; often licks diligently some part of his body, when upon examination a scar may usually be seen; exhibits a strange disposition to pick up and swallow small objects of any kind, such as bits of thread, straw, hair, excrement, etc., and occasionally vomits. As the complaint advances, he becomes irritable, flies at strangers, or at other things; and though he may obey the voice of his master, resists correction, and is enraged instead of being terrified by the sight of a whip. There is a profuse secretion of saliva, which flows from the mouth, and occasions foam about the lips. This is followed by extreme thirst, and apparently the secretion of a viscid mucus in the fauces, which the animal seems desirous of getting rid of by working with his paws at both angles of his mouth; the breathing is laborious; a peculiar sound is made in inspiration, and the character of the voice is changed. If at liberty, the animal is incessantly in motion, snaps at other animals when they meet him, and sometimes seems to seek occasion to attack them. It is only when fatigued that his tail falls between his legs. Occasionally he appears to have visual illusions, acting as if he saw objects which have no existence. At length symptoms of paralysis appear; the under jaw becomes powerless; the legs give way; the animal totters and falls, and usually dies on the fourth, fifth, or sixth day, with or without slight convulsions. Mad dogs are not subject to convulsive epileptic fits during the course of the disease. Dissection shows nothing remarkable, except the presence of a great quantity of heterogeneous matters in the stomach, which the animal has swallowed, and in the absence of these, a dark chocolate, or coffee-colored liquid.

A great deal of unnecessary alarm may be saved often, if a dog supposed to be mad, and that has bitten an individual, should be caught and confined long enough to determine whether he is really affected at all. If he should in a few days present symptoms of the disease and die, the individual bitten should certainly use all the preventives in his power against the dreaded malady.

*Causes.*—It is supposed that hydrophobia may originate spontaneously in any animal, even in man, and that whenever it has once originated, it may be communicated to any other animal through the saliva. The poison is more frequently introduced through means of a wound; but there is reason to believe that it may also be contracted through the mucous membrane, as, for example, by wiping the mouth or lips with a towel on which some of the saliva of a mad animal or person had been deposited. This, however, is a doubtful point. Magendie and Buschet succeeded in producing the disease in one out of two dogs by inoculation with the saliva of a human subject. The dog

bit other animals of the same species, communicating it to them. But it is possible, in this case, that the disease came on spontaneously, although such was probably not the fact.

It is an interesting but most difficult question, as to how this poison operates in the system, and why it should lie often so long apparently inert in the body. The hypotheses on this subject are, that the poison of hydrophobia, like that of small-pox, is capable of propagating itself by some chemical action, like that of fermentation, or by the development of germs, supposing it to be organized. But these, of course, are mere hypotheses; and in the present state of knowledge no better explanations can be given of the nature of the disease.

It is believed in this country generally that dogs have the disease only during the hot season. It is said, however, that in the hot regions of Egypt and Syria, where dogs abound, hydrophobia is wholly unknown. Some have supposed that severe cold as well as great heat is productive of the disease. According to M. Trollet, it appears from a comparison of one hundred and forty cases, that it is most frequent in France during the mild months of May and September.

*Treatment.*—Formerly a very barbarous method of practice was in vogue in this disease. Dr. Watson tells us that when it was believed that the hydrophobic patient was apt to bite his friends, the custom was to smother him between two feather beds, or to open a vein and leave him to bleed to death, under pretense of shortening *his* sufferings, but really with the cowardly view of protecting *themselves*. Well might a patient be excused for being nervous and irritable when he had reason to expect such a doom to come upon him.

The indications of treatment in this fearful malady are, first, to prevent the absorption of the poison; second, to remove the irritation of the throat; and, third, to diminish the excitability of the nervous system.

In order to carry out the first of these objects, the only known effectual method is to remove completely the mucus of the poison before the period of incubation is passed. The sooner indeed this is done the better. It is said there is scarcely a case on record, where this measure has been thoroughly carried out at an early period, in which it has not proved successful. Before proceeding to remove or cut out the bitten part—and the surgeon's knife or any other very sharp-cutting instrument is to be used—the wound should be cleansed in the most thorough manner, so that no possible portion of the saliva may remain upon its surface. To make sure of cutting to the bottom of the wound, a probe should be introduced into it, so that when the knife is made to pass beyond it, there is a certainty of having gone deep enough with the in-

cision. It is considered that if lunar caustic is applied freely to the wound, additional security is obtained. This, however, is doubtful; but the caustic can be of no material harm. After removing the part, the wound is to be treated by water-dressing, the same as we would do in any other case.

But there are instances in which the excision of the part can not from its nature, be effected. The wound may be so lacerated, or may penetrate a particular part so deeply that it is not possible to cut it out. For some such cases amputation has been recommended. It has been considered better to lose a finger, or even a whole hand, than to run the risk of the disease. There is, of course, always some danger in amputation, even of the smallest part. In cases, then, where this dreadful measure is proposed, it remains for the patient to decide as to what must be done.

Powerful sucking of the wound, the application of cupping glasses, exhaustion by means of a pump, and cauterization, have all been recommended in those cases where the part can not be removed. Soaking the part for a long time in tepid water, would assuredly prove one of the most promising means that can be resorted to. The action in such cases, so far as the body is concerned, is outward. Hence there would be great hope of eradicating the poison before it could have time to enter the circulation. Before proceeding to these operations, it may be well to apply a ligature about the limb, with the view of preventing the poison entering the circulation.

In regard to the second indication of treatment—removing the irritation of the throat—Dr. Hooper tells us that it has never been effectually fulfilled in any other way than by the use of ice taken internally. Here, also, the prolonged shallow-bath—that greatest of all hydropathic appliances—would be of signal benefit. Ice can not be had in all situations, and it is a satisfaction to know that in hydropathy there are various means of arriving at the same end.

In connection with the swallowing of ice, or the cold shallow-bath, whichever might be used, or both in connection, clysters of cold water often repeated would be a serviceable means, not only to arrest the trouble at the throat, but the nervous symptoms generally. If the patient should be very weak, tepid water could be used instead.

Dr. Hooper admits that in regard to the third indication of treatment, viz., “to diminish the excitability of the nervous system,” powerful narcotics, although they are recommended, accomplish little if any good. “Experience proves,” says Dr. Hooper, “that even the largest doses have little or no effect in controlling the patient’s sufferings.” “The whole magazine of therapeutics,” says Dr. Wood, “has been

exhausted, and vainly exhausted, in the treatment of hydrophobia. Remedies the most violent have been used unsparringly; and practitioners have not been deterred by the apparent inertness of any medicament from giving it a fair trial. Bleeding in every degree, mercury, opium, and all other cerebral stimulants, tobacco, and all other nervous sedatives, the acids and the alkalies, oil of turpentine, cantharides, white hellebore, cevadilla, the salts of lead and those of iron, nitrous oxide inhalations, the injection of warm water and narcotics into the veins, electricity and galvanism, the hot vapor and hot air-bath; even the poison of the viper have all been employed, and with the same sad results." These are indeed "sad records," and no one, I think, who is made acquainted with the utter uselessness of drug-medication in this disease, would ever willingly submit to it, but would rather, if he must, "die in peace."

It is a great pity that water, the most powerful of all sedatives, and the most effectual of all remedial means, in "diminishing the excitability of the nervous system," could not have had a fair trial in the multiplicity of medical experimenting that has been performed in the treatment of this disease. But Dr. Hooper gives one case in which the internal use of ice was attended with the most gratifying results, although the patient was in the end destroyed by the untimely application of the douche. The case is as follows: "The patient, a boy of seven years of age, laboring under hydrophobia in its most marked form, and refusing with characteristic horror and impatience every thing previously offered him, whether in a liquid or solid form, and who had taken ten drops of hydrocyanic (prussic) acid, repeated at short intervals, and at length twenty drops at one dose, without apparent effect, after the most severe convulsive paroxysm which had yet seized him, was offered a fragment of rough ice. This he swallowed with avidity. Fresh pieces were constantly put into his mouth, which he seized and crunched between his teeth with remarkable eagerness, swallowing them with the greatest ease. In less than half an hour he had taken, by a rude estimate, no less than a pound and a half of rough ice. At the same time that the ice was given internally, a bladder containing a mixture of roughly powdered ice and common salt was applied to the whole length of the spine and around the throat. Under the external and internal application of cold, all the symptoms of hydrophobia referable to the throat and chest, with the exception of occasional hawkings, had passed away; the viscid mucus no longer flowed from the mouth; the mucus r le disappeared from the chest, and nothing remained but extreme restlessness, violent excitement, and incoherence. The patient sat up in bed with a large fragment of rough

ice in each hand, talking incessantly in a loud voice, addressing a thousand incoherent questions to his mother regarding members of his family, and showing an aimless eagerness. The intense excitement continuing, and all the peculiar symptoms of hydrophobia having subsided, the cold *douche* was, in Dr. Todd's absence, applied by my directions, but the system did not rally from the shock."

It was certainly a very injudicious procedure to resort to the most exciting of all hydropathic appliances at a time so critical, and especially when the patient was in a state of "intense excitement." The cold shallow-bath, prolonged even for hours, if necessary, would have been a most useful measure in this case; and after the nervous excitement had been sufficiently reduced by this bath, the wet-pack would also have been highly appropriate; but the *douche* was one of the worst possible things for the poor sufferer. His life was at least shortened by the injudicious procedure.

It would seem, according to Dr. Good, that cold water is no new remedy in the treatment of hydrophobia. Thus, in the time of Celsus, immersion was used to take off the spasm of the disease, and to quench the thirst that accompanied it. In the almost hopeless state of the disease, "the only remedy," said Celsus, "is to throw the patient instantly, and without warning, into a fish-pond; alternately, if he have no knowledge of swimming, plunging him under the water that he may drink, then raising his head; or forcing him under, if he can swim, and keeping him below till he is filled with the water; so that the thirst and the water-dread may be extinguished at the same time." This surely would come under the head of what some would call "harsh treatment;" but it is incomparably less severe than the methods of poisoning which have so often been resorted to.

Dr. Good alludes to some cold-water experiments made by the members of the Royal Academy in Paris; and although he speaks of these experiments as instances of "dangerous pertinacity," yet admits that success is said to have accompanied one or two of them. "Thus," says Dr. Good, "M. Morin relates the case of a young woman, twenty years old, who, laboring under symptoms of hydrophobia, was plunged into a tub of water with a bushel of salt dissolved in it, and was harassed with repeated drippings till she became insensible, and was at the point of death, when she was still left in the tub, sitting against its sides. In this state, we are told, she was at length fortunate enough to recover her senses, when, much to her own astonishment as well as to that of the bystanders, she found herself capable of looking at the water, and even of drinking it without choking."

Now we are not to suppose that in this case the patient became



insensible in any other respect than that of a deep degree of quietude which would very naturally take place after the soothing influence of water had brought her out of the terrible degree of nervous excitement which she had suffered. Besides, if she were really insensible, and at the point of death, how could she remain in the tub, "*sitting against its sides*." She would fall down, rather than *sit*, we would suppose; at all events, it would seem that she was cured, and that by cold water, for the salt could have no good effect whatever in the case, except possibly to make the water colder than it otherwise would be.

We read in some of the hydropathic works that Priessnitz cured rabid dogs repeatedly by douching them perseveringly with cold water. This statement does not, however, give the exact idea of his method. The dogs which were supposed to be rabid—of which, however, it must be admitted that there is some doubt, inasmuch as in all countries probably not more than one dog in fifty that is suspected of rabies is really affected in this way—were tied up, and several buckets of cold water were poured over them until they shivered, when they were allowed to dry. The process was many times repeated, till the cessation of shivering betokened the absence of fever, when, if the animal ate, he was considered entirely cured. The bath by affusion, it will be observed, is a very different thing from a "powerful douche." In the human subject, Priessnitz's great reliance would have been in the shallow-bath, although the well-wet, cold rubbing-sheet, often changed, would be a very good substitute.

### NEURALGIA—NERVE PAIN.

The term *neuralgia* is derived from two Greek words signifying "nerve pain." There can, however, be no pain without the nerves being more or less affected. More strictly, the term *neuralgia* implies a *severe* nerve pain. It is pain confined to the nerves. *Neuralgia*, in its severer forms, is among the most painful of all diseases to which the living system is liable. It may have its seat in any of the nerves of sensation. In some instances it affects also the nerves of organic life.

*Symptoms.*—Neuralgic pains, like all others, vary indefinitely, but usually it is of considerable severity. A great variety of terms have been used to designate the character of the pain. It is said to be "severe," "acute," "lancinating," "darting," "piercing," "tearing," "aching," "burning," "tingling," "benumbing," "screwing," "pulsating," and the like. The disease is apt to approach without any previous warning whatever—either beginning moderately, or darting

at once like electricity along the course of the affected nerve. In other cases there are certain warnings, chilliness, shivering, general discomfort, distress, nausea, etc. As in other painful diseases, the pains are not constant, but either remittent or intermittent. The pain may be confined to a single nerve, or it may be more general in its character. There is in some cases a spasmodic twitching of the muscles about the part affected. Sometimes there is severe spasm in consequence of the pain, and not unfrequently the whole frame is, as it were, paralyzed with the violence of the attack. The part may be exquisitely tender; but often strong pressure affords relief, while at the same time the slightest movement or touch, or the mere flapping of a handkerchief, will cause the most violent pain.

The *duration* of neuralgia is very variable. It may last for minutes, hours, days, weeks, months, and perhaps for years, with scarce any cessation. More frequently the attacks come and go, sometimes with a regular periodicity, but oftener without rule. It does not often happen that a person has only *one* attack. Under ordinary modes of treatment, neuralgia is apt to visit the patient more or less frequently through his whole life.

Neuralgia does not often prove a fatal disease of itself. I have no doubt, however, that many a life has been destroyed by the powerful medicaments that have been so freely administered in the disease, and which have gradually worn down the constitution till death, even, seemed a most welcome relief to the sufferer. Not unfrequently has it happened that suicide has been sought as the only means of effecting an escape from the dreaded disease.

It is supposed that neuralgia affects both sexes about in equal proportion. Possibly females in the present state of society are, on the whole, the most subject to it. Those of a weakly habit, especially such as are anemic and chlorotic, are subject to it. Neuralgic headache is very common among females of inactive habits, and who drink much of strong tea and coffee.

*Seats of the disease.*—Neuralgia may affect any part of the body where there are nerves; but certain parts are more subject to it than others. It is very common about the face, in which case it is called *tic douloureux*; occurring in the stomach, it is called *gastralgia*; in the heart, *angina pectoris*; in the intestines, *neuralgic colic*; in the urinary organs, *nephralgia*; in the sciatic nerve, *sciatica*. It may occur in the brain, as, indeed, in any organ of the body. Sometimes it affects the scalp, or some other part of the skin exclusively; in other cases it is seated in the subcutaneous tissue. No important part of the system can be said to be wholly free from a liability to its attacks.

It is important to remember that the pain in neuralgia is not always experienced at the part affected. We have neuralgia apparently in the liver or heart, or in the walls of the chest, or parietes of the abdomen, while the whole difficulty is in the spinal column. We have, hence, neuralgia of the face, or face-ache, when the cause of the pain lies wholly in a decayed tooth, which, too, may be sound externally, and only affected at its root. In treating the disease, it is especially necessary to be on the sharp look-out in regard to these things.

*Causes.*—Cold is among the most common of the exciting causes of this disease. If a person is exposed to a drenching rain when he has not sufficient constitution to bear it, neuralgia is one of the effects he may experience from such exposure. Sleeping in a damp room or damp bed, and living in damp apartments, are frequent causes of the disease. A not infrequent cause is pressure upon the nerve affected by tumors, splinters of bone, wood, or a leaden bullet or shot that is lodged in some part where it irritates the nerve. Gout and rheumatism often cause neuralgia; that is, we have what are called *neuralgic gout* and *neuralgic rheumatism*, when these affections are of a peculiarly painful nature, affecting more especially the nerves. Tea and coffee, as well as tobacco and all other narcotics, often cause the disease. Probably the worst form of neuralgia is that which arises from mercury in the system. All of the more powerful of drug-medicaments are liable to cause it, and when it already exists, can scarcely fail of making it worse in the end, if not immediately. Intemperate persons are particularly liable to it. Malaria is well known to cause a very intractable form of the disorder, which can be effectually cured only by the use of such means as are effectual in eradicating the miasmatic poison from the system. It is very apt to occur after fevers of long and debilitating characters, more especially so if these have been treated by drugs. Whatever tends to debilitate the system, is liable to produce neuralgia. A state of debility always favors the disease.

It often happens that disease of one part causes neuralgia of another part. In many cases of disease of the hip-joint, the patient experiences the pain in the knee or foot, the pain being of a neuralgic character. Disease of the artery of the thigh may produce neuralgia at the inside of the knee; spinal disease is often visited upon some other part in a similar way; in stone of the bladder, severe neuralgic pain is often experienced at the end of the private member; irritation of the kidneys causes pain in the thighs; disease of the liver, pain in the shoulder; disease of the heart, pain in the arm.

As an important practical fact, it should be remembered that the state of the stomach exerts a great influence in this disease. A debauch

will often bring on a fit of neuralgia. Mere acidity of the stomach has been known, over and over again, to cause it. Remove the acidity by vomiting or otherwise in these cases, and the trouble at once vanishes.

*Treatment.*—Surgical operations have often been performed for the cure of this disease. Where it is practicable, the division of the affected nerve has been attempted with the view of cutting off its connection with the sensorium. If the pain is invariably limited to one part, it is possible for the operation to succeed in some cases. But “unfortunately,” says Dr. Elliotson, “the operation very rarely cures. One portion of the divided nerve suffers again, or the disease reappears in some other part. Too often there has not been even temporary relief.”

In a few instances, amputation of the affected part has succeeded. Dr. Edward Johnson mentions the case of a sailor who had received a musket-ball through his arm. The arm, however, got perfectly well. Some time afterward he was seized with tic in the arm which had been wounded. All sorts of remedies were tried in vain. The pain was so intensely severe, that the man requested that his arm might be amputated. The limb was accordingly removed. It was then ascertained that the bullet, in passing through the arm, had left a small fragment of lead adhering to the nerve, which had been the seat of the pain. Now Dr. Johnson remarks, “It is quite clear that nothing but an operation could have cured the tic in this case.” But of this we are not by any means so certain. If, instead of debilitating the patient’s constitution with all manner of poisonous drugs, thus rendering it tenfold more liable to take on neuralgic action than it otherwise would have been, he had been subjected to a renovating course of water-treatment, for a sufficient length of time, we do not know but that he might have been made so healthy that no neuralgic pain would have been experienced. Besides, all such cases should be submitted to the full force of the *hunger-cure*, before amputation should be resorted to. Certain I am that if I had neuralgia that I *knew* was caused by a mechanical irritant—a thing impossible to know beforehand—I would fast for days and even weeks, and this repeatedly, before I would submit to an operation so revolting as that of removing a limb by the knife. I repeat, we are by no means certain that *all* such cases can not be cured if the proper means are taken in season.\*

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\* Dr. Good mentions the following case of neuralgia of the foot, in which a patient came near losing his leg through the officiousness of a surgeon. Surgeons, be it remembered, are generally by far too much given to the use of the knife; it is their trade. Dr. Good observes:

“In calling the attention of the medical profession to this species of neuralgia, so long ago as 1817 I had my eye directed to a very marked case which had then lately occurred to me

As a local application in this disease, ice, and ice-cold water have been found to afford much relief. Steaming the part affected has been useful in some cases, and the hot douche—a remedy which can seldom be obtained—has been of service in subduing the pain. Dry heat, applied by means of a hot iron, or hot coals, held near the part as long as the patient can bear it, affords relief in some cases. Steaming the part with a hot brick or stone, with a wet cloth wrapped about it, has certainly done well in relieving rheumatic neuralgia of the back. Covering the part with oiled silk and cotton or wool, helps to keep off the attacks in some cases. In general, however, I am inclined to think that the cold applications are more effectual and permanent in their action.

M. Gaudett, a French writer, asserts that facial and cranial neuralgia and hemicrania have, in his experience, yielded to no therapeutical remedy with the same facility as to sea-bathing, by immersion and affusion. The same writer holds also, that sciatica, even when occurring in debilitated subjects, and of long standing, yields to what he calls the tonic and sedative effects of sea-bathing. In all these cases it is

in a clergyman of London, about forty-five years of age, but otherwise in fine health and cheerful spirits. He had for many years been a victim to it. The paroxysms were short, and of uncertain occurrence, but so acute as nearly to make him faint, and at length compelled him to relinquish the duties of the pulpit, for which, from his zeal and eloquence, he was admirably qualified, but where he had frequently been obliged to break off with great abruptness from the unexpected incursion of a fresh paroxysm. The pain usually extended up the calf of the leg toward the knee, and ramified toward the toes in an opposite direction; and was usually compared by himself to that of scalding verjuice poured over a naked wound. The tibial branches of the popliteal nerve, and particularly the plantar twigs, seem, in this species, to have been the part chiefly affected, though it is probable that some of the offsets from the peroneal branch associated in some instances in the morbid action.

“Every therapeutic process that the art of medicine in the hands of the most experienced physicians of the metropolis could devise, was in this case tried, in a long and tedious succession, in vain. Sometimes external and sometimes internal preparations, or a tight ligature, appeared to afford a temporary alleviation, and to protract the intervals, but never any thing more. It was, in consequence, proposed by a surgeon of great eminence, to amputate the leg, which was at one time on the point of being submitted to, though protested against by the present author on two accounts. First, the uncertainty whether the morbid condition of the nerve might not be seated in its origin, instead of in its extremity, in which case the amputation could be of no avail; and, secondly, the chance that, in process of time, the keen sensibility of the affected branches would be worn out and obtunded by the violence of the action. Such was the undecided and miserable condition of the patient at the time before referred to. Since this period the prediction that the disease would gradually wear itself out, has been completed. The paroxysms are now slight and tolerable, and the intervals much longer, and the patient has, for nearly a twelvemonth, been able to resume the duties of his profession without any interruption.”

There is not a doubt but that this patient could have been cured completely of the disease by a timely and judicious application of water-treatment, in connection with a course of the hunger-cure. What a blessing would it have been to him to be cured by pure clean water and diet, than to be subjected to “every therapeutic process” of the drug-school, and not cured at that, but doubtless “rather made worse.”

the improvement of the general health that occasions the cure. The effect of bathing is only indirect. The cures are also strictly hydropathic, the salt of itself having no good effect. (See the remarks on "Sea Bathing," in another part of this volume.)

*Sea-sickness* will, in most cases, and probably all, relieve neuralgia, for the time at least. In some cases it will cure it entirely. A long sea-voyage, which works a thorough change in the constitution, is to be recommended. Such a course has been the means of curing some of the most inveterate cases. Long journeys, especially if in a foreign country, will often effect the same object. A complete change of business or occupation has in some instances been the means of curing neuralgia, when all ordinary measures have failed. In all of these instances the mental effect of the new mode of life has much to do in eradicating the complaint. If a person should travel by land in private conveyance from New York to Minnesota or New Orleans, avoiding, of course, unhealthy districts and seasons, it would constitute an important era in his corporeal existence; and the effect both upon body and mind would be such as to work in his constitution a manifest improvement.

But it is not every one who can avail himself or herself of the advantages of either sea or land travel, but must do what they may at home. The comfort the author has to give in such cases is, that the *best* means of curing neuralgia are accessible to them wherever pure water, pure air, and wholesome food exist. The hunger-cure, that most potent of all remedies assuredly, if they have courage sufficient, they can have. The best of means are always simple, if they can but be understood.

If neuralgia depends upon the pressure of a foreign substance, this should, if practicable, be removed. We can not, of course, always know that such a cause exists; but if the case is a clear one, the proper method of treatment is equally so.

But we will suppose that we have reason to believe there is pressure upon a nerve, causing the neuralgic pain, and yet in such a situation that it is impossible to remove the cause; what, then, are we to do?

It should be remembered that the constitutional stamina, or, in other words, the state of the patient's general health, exerts a great influence in all matters of this kind. Thus a person may have had an amputation, so that the coverings of the stump in healing press upon a nerve. Now if the health is firm and good, all the bodily functions going on properly, he could hardly experience neuralgia. At any rate, he would not be apt to suffer in this way. But if he should be so unfortunate as to be scrofulous, or otherwise constitutionally feeble, or if he should

manage his health badly, having yet a good constitution, he would be much more apt to suffer in the way described.

It is not often that this disease arises from mere pressure. In general it is owing primarily to a depraved state of the general health. Either the patient is pale and feeble, or too corpulent, both of which are states of disease. The indication of treatment is plain in such cases, which is, if possible, to restore the general health.

It is important also, to remember that neuralgia, being a nervous affection, is influenced in a great degree by the state of the mind. A great many singular and trifling remedies have in some cases succeeded, on the principle of engaging the fears, faith, or wishes in a marked manner. It is well known that mental impressions alone are capable of influencing this disease in many instances to an unlimited extent. A journey, a ride, or even a visit from a distant friend, sometimes wards off the most painful attacks.

But there are cases that do not succumb in this easy way. I have myself attended a lady in this city who has been at times obliged to pass whole days with the pain of facial neuralgia so bad upon her that she could not utter a word, but was compelled to write whatever she wished to communicate upon a slate. In this case the imagination had as little as possible to do with it; extraction of all of her teeth did not cure the disease; it was owing to a depraved state of the general health.

Now it is a question of very great importance to know how to treat those cases of such terrible suffering in the best possible manner; not only how to prevent the attacks, but how to manage them when they are upon the patient. In this department, as in every other relating to painful diseases, the "whole magazine of the materia medica" has been brought into requisition, but the results have been far from satisfactory.

In the case above mentioned I had the fullest opportunity to do whatever I wished. The lady had found herself, by experience, that snow rubbed upon the face, when the paroxysm was present, had afforded her greater relief than any local application she had ever tried. This gave us a hint, for it was in the earlier times of hydropathy in this country. The patient was bathed often in cold water, and was kept in the wet-sheet—not too closely packed—the larger part of the time. She had had all sorts of treatment which the ingenuity of eminent New York physicians could devise—except cutting the nerve, which had been recommended—but nothing ever did her a hundredth part the good that the cold water did. We were of course careful to keep the extremities comfortably warm; but as for cooling not only the

face, but the body generally, there was a great deal of it done. Her recovery was as rapid as could be expected under such circumstances; and, what was better, she learned how by water-treatment, and prudent living, and avoiding all undue excitement, she could wholly master the disease. She had been a sufferer for many years, so that the cure is to be put down on the whole as a remarkable one.

I have not experimented upon the warm-bath in this disease, but I am sure it would work well in connection with the cooling plan. As to hot-baths, they are worse than useless here, as everywhere else. A mild, long-continued vapor-bath, in connection with cold bathing, would be a useful means. The wet-pack acts, in fact, somewhat in the same way as the warm and vapor baths.

In many of the slighter cases of neuralgia, the well-wrung abreibung will produce instantaneous relief. This may be repeated with perfect safety as often and as many times in the day or the night as the patient may desire.

Among all the forms of this affection, there is one which should be particularly spoken of in this place. I refer to what I call *mercurial neuralgia*. More commonly this takes on a chronic form. A patient has had a private disease, a fever, or for some other reason he has been salivated, or at least subjected to a severe course of mercury. As a consequence he is liable at any moment to experience a neuralgic attack. Now if we receive such a patient into a Water-Cure establishment, and set to work in earnest to cure him upon the tonic plan, we shall be certain of making him worse before the object is accomplished. In some of these cases the sufferings will indeed become very great if we follow a thorough course. Now I hold that if in such cases we make a judicious combination of the hunger with the Water-Cure, we shall not only cure the patient in a much shorter time, but with much less pain. It is of course not possible to give in writing exact rules for the treatment of different cases as they occur, for no two are ever found precisely alike. But it may be stated in general terms, that when a patient is suffering from neuralgic pain, it is safe—wholly so—for him to abstain from all food till his pain ceases. At the same time the lighter forms of treatment, such as rubbing-sheets, tepid shallow-baths, mild vapor-baths, the warm-bath, and towel-washings, may be safely resorted to. When I speak of this extreme fasting, I am supposing that he is so situated that he gives his mind and body wholly up to the treatment, or at least that he is not harassed by perplexing cares. In no disease is it more necessary that the mind should be in a state of quiet and contentment than in this.

The immense importance of attention to the state of the digestive



organs should not be lost sight of in the management of neuralgia of whatever form. It is indeed doubtful whether the digestive organs are not always more or less disordered in this disease. We have reason to believe that such is the fact; at any rate, we can not be too careful in our efforts to improve the blood-making and blood-distributing processes to the fullest extent, whenever we attempt the cure of this formidable disease.

I have just remarked that the hunger-cure, so called, is one of the most valuable remedies in this disease. In illustration of the power of fasting, I subjoin the following account:

Dr. Watson saw the case in company with a friend, but not professionally. It was that of a young girl, twelve or thirteen years of age, pale and delicate, who was subject to a most exasperating agony in the side of her face and neck. "The pain," says Dr. W., "came on whenever she swallowed any thing; the act of deglutition proved invariably the exciting cause of the torment. She was at that time under the care of a practitioner who had desired that she might eat mutton-chops three or four times a day. Of course this was a sentence full of misery to her; but so desirous was she to get rid of her disease, that she resolved steadily to follow the directions enjoined her. This plan was to be tried for her at least a month; after that time, if she were no better, her mother had resolved to consult another practitioner who had been much recommended to her. She had already consulted a great number of medical men, for the malady had existed nearly two years. At the end of the month she was worse than at the beginning, and the new practitioner, Dr. Pennington, was called in. He acted like a man of sense and sagacity, upon the fact that the act of swallowing always gave rise to the pain; and he advised that she should not attempt to swallow for twenty-four hours. The period passed without any return of the pain, but it immediately recurred upon her eating a morsel of bread. The result of this experiment, however, encouraged him to hope that the morbid habit might be broken through by a sufficiently long abstinence from swallowing. And as she had been subjected to a great variety of fruitless treatment, he gave her no medicine, but advised that she should refrain altogether from taking food or drink by the mouth. Nourishing injections, composed of beef tea with an egg beat up in it, or of milk, were thrown into the rectum two or three times a day. This plan was persisted in, and no nutriment whatever was taken by the mouth for five weeks and three days, and no paroxysm of pain occurred. At the end of that period the pulse sank suddenly from between seventy and eighty to thirty-five beats in a minute; and thereupon Dr. Pennington

thought he had carried his experiment far enough, and deemed it advisable to administer by the mouth a desert-spoonful of beef tea twice a day. This was continued for four days without producing any return of the pain. A small piece of fish was then allowed, and afterward some chicken; and proceeding thus cautiously, in the course of a month she was able to eat and drink any thing without the slightest inconvenience."

Dr. Watson also states that "some time afterward the neuralgia again returned, affecting the left knee, and this was remedied by a different mode of treatment."

This case is, on the whole, a very instructive one. The physicians seem to have had the idea that the act of swallowing was the origin of the difficulty; but this is manifestly a great error. True, deglutition was the *exciting* cause of the pain; but the *real* cause was back of that—a something wrong in the general health. In regard to the remedy, Dr. Watson and Dr. Pennington both appear to have been in error in supposing that merely abstaining from swallowing was the means of curing the pain. They appear to have had no idea whatever of the power of abstinence in quelling neuralgia. Abstracting for the most part the food, was evidently the great cause of the favorable change; for it is a law of nature that in wasting the body by starvation, pains die away. It is true they may return again; but this will depend in great part upon the subsequent mode of diet and the general treatment pursued. In the case referred to, the nourishment given during the period of abstinence and afterward was not of the most favorable kind, animal food being necessarily more stimulating than vegetable, and consequently more apt to induce a return of the morbid symptoms.

I respectfully ask the reader to compare the two modes of treatment herein referred to—the one by poisonous drugs, such as arsenic, strychnine, belladonna, tobacco, stramonium, hyosciamus, opium, morphia, quinine, the preparations of copper and zinc, antimony, mercury, iodine, oil of turpentine, etc., not omitting bleeding to the fullest extent; the other purifying the system by means of water, air, wholesome food, exercise, and fasting: the first always deteriorating the energies of the system, generally failing to cure, and often rendering the sufferings a hundred-fold greater than they otherwise would have been: the other curing often, always rendering the sufferings less, and never failing to leave the constitution better than it found it. I think no well-informed, reasonable man can hesitate for a moment as to which of the two modes he would prefer.

## OF INJURIES OF THE NERVES.

It is a curious and important pathological fact that if a nerve be completely divided, little injury or inconvenience, comparatively, arises from it; while, on the other hand, if it is merely wounded, or if it is nearly separated, a few of its fibers still remaining undivided, very dangerous consequences may ensue. This sometimes happens in the operation of venesection, when such symptoms as severe pain, recurring in paroxysms, and shooting in the course of the nerves, violent spasms of the limb, or palsy of the part, epileptic fits, and great disorder of the digestive organs occur. The severer symptoms may also follow a bruise, compression or stretching of a nerve. A blow, such as is often met with on the ulnar nerve above the elbow, or the pressure of crutches on the axillary nerves, or a violent wrench or stretch of a part, may cause numbness, spasm, palsy, etc. A nerve may also become compressed by the cicatrix of a stump, after amputation, in such a way as to cause the disagreeable and painful symptoms referred to.

*Treatment.*—When a nerve has been wounded, and serious consequences ensue, it should, if possible, be freely divided with the knife. If neuralgia comes on in a stump while healing, the full force of the hunger-cure, which is explained in another part of this volume, should be resorted to. If this does not succeed, then will arise the question as to whether opening the wound afresh and removing the cicatrix, or re-amputation itself shall be resorted to. These measures in some cases succeed, but in others fail. For a patient to undergo such an amount of suffering and still not succeed in getting rid of his pain, is sad indeed. After all, I have more hope from fasting and proper habits, than any thing else in such cases. The reader is particularly referred to what is said herein on the subject of neuralgia.

It is also an interesting fact that when a nerve has been divided so that palsy and loss of sensibility of the part follow, it will yet in many cases heal in the same manner as bone or tendon, and sensibility and motion return as before. Sensibility has begun to return in three, and motion in four weeks, after division. A nerve may also recover its functions fully after a small piece of it has been removed. Nature is truly wonderful in her operations in these cases.

The water-dressing is as favorable a remedy in the wounds of nerves as it is in other kinds of injury. No other method can at all compare with it.

## EPILEPSY—FALLING SICKNESS.

The name of this disease is derived from a Greek word signifying *sudden attack*, or *to seize upon*. The Romans called it *morbus comitialis*, because the violence of the passion to which the Roman people were accustomed to be worked up in their popular assemblies, when addressed by demagogues and others, often proved the exciting cause of an epileptic attack. In such cases it was called a bad omen, and the meeting was at once dissolved on account of it. In England similar attacks have been known to occur in highly excited public gatherings, in which cases it has been called the *electioneering disease*. We have "electioneering" and demagoguism enough in our own country certainly at times, but we do not hear of people being struck down in this way.

The Jews, it would seem, ascribed this disease to the influence of demons. In the Gospel of Matthew, chapter xvii., and 15th verse, we read, "There came to him a certain man, kneeling down to him and saying: Lord, have mercy on my son, for he is lunatic and sore vexed; for oftentimes he falleth into the fire, and oft into the water." And Jesus rebuked the devil, and he departed out of him; and the child was cured from that very hour." This passage is supposed to refer to the disease in question.

In some cases the fits are more numerous at first, but afterward become gradually less frequent; the more infrequent, however, the more severe they are apt to be. There may be as many as fifteen or twenty fits in a day at first. Some have a few fits, and then they pass off, never to return. In some cases a single fit only is experienced. The attacks may also become more instead of less frequent, which is rather a bad omen. There is usually but one attack at a time; but in some cases several fits are experienced in quick succession, one occurring before the other has fairly left off. Dr. Good tells us that the disease has occasionally lasted for two or three days, with little or no remission; that it has also returned at stated times, and with great frequency—with the revolution of the morning, and even of the night; and in one recorded case, on the revolution of the birthday of each of the patient's parents. This learned author supposes that the disease may have observed *lunations*, or have been influenced by the phases of the moon.

*Symptoms.*—In some instances the patient has no warning whatever of the attack, and when it is over he seems to have no knowledge of what has been going on. It is said, indeed, that persons have been epileptic for many years, not knowing that they had ever had a fit of

the kind. In most cases there is good warning of the disease; the patient experiences a sensation of debility; the head is oppressed, and there is then giddiness, swimming, and aching of the part. Sometimes the head symptoms occur in a slight degree, so that the patient, by prudence, may escape for the time. In some cases a specter of some sort is seen just as the fit is to come on. Dr. Gregory was in the habit of relating in his lectures that he knew a patient who, before the fit, saw a little old woman come out of the corner with a stick, and when she approached and struck him down he fell in a paroxysm. This was of course a mental delusion of the moment only.

In the epileptic fit "the countenance is ghastly and pale, or perhaps of a bluish red; it is sometimes sallow. The lips are livid; the neck and the cheeks much swollen, and perhaps the whole body bedewed with perspiration, especially the head and cheeks. There is foaming at the mouth, and generally the tongue is bitten; there are universal and violent convulsions, horrid grimaces, a rolling of the eyes, and dilatation of the pupils. Sometimes it happens that the urine and feces are discharged involuntarily—the urine most frequently; and occasionally there is a discharge even of semen, with or without an erection, we do not know which. The hands are generally clenched in the fit, and the heart palpitates strongly; the pulse is quick, and the respiration is short, deep, and irregular."

In epilepsy, as in several other nervous diseases, such as hysteria, St. Vitus' dance, and paralysis, one side usually becomes more affected than the other; it may be either side; but probably the left suffers oftenest, the same as occurs in paralysis.

It has been a question with medical writers whether a person suffers pain at all during these attacks. It is a merciful law of the living system that we soon forget pain after it has passed. If it were not so, life would indeed be miserable; but it has been ordered otherwise. In the epileptic fit persons do not remember to have suffered, so that there is reason to believe they do not. We are assured that persons do not in general suffer when they are hung. Lord Bacon gives an account of a person who was hung, and all but killed, who yet declared he did not suffer. The poet Cowper, according to his own statement, attempted three times to commit suicide, one of which was by hanging. It seems he did his work badly, for when he suspended himself over his door in the Temple, and becoming insensible, his weight caused him to drop upon the floor, where he was found and afterward restored. He declared that his experiment caused him no suffering whatever. Now, in strangling, the brain becomes terribly congested—more so a good deal, we have reason to suppose, than it

does in the epileptic fit. We can therefore readily suppose that the patient does not experience pain under such circumstances.

Like all nervous attacks, the epileptic fit varies in different cases as to its length—from one to fifteen or twenty minutes may be stated as the usual time. The stupor, however, may and generally does last much longer than the convulsions.

*Causes, Characters, etc.*—The *exciting* causes of epilepsy are numerous. Among these, *fright and sudden emotions of the mind* are conspicuous. In many cases, doubtless, parents have made their children epileptic by frightening them, or allowing others to do so—a barbarism that ought everywhere to be treated as a penitentiary offense. Overloading the stomach, and other debaucheries, are very apt to bring on an attack by causing a partial congestion of the brain. Epilepsy is very apt to come on in the night-time in consequence of what some one has called the “congestion of sleep.”

The sudden repulsion of eruptions by drug applications, especially when situated about the head, and the sudden cessation of the menstrual and other habitual discharges, sometimes give rise to it. Constipation, worms, and other disorders of the stomach and bowels, frequently act as an exciting cause. Arsenic and other corrosive poisons, taken for medicinal or other purposes, have been known to cause the disease.

It is to be particularly remarked, “for the benefit of those whom it may concern,” that tobacco is to be put down as *one* of the causes of epilepsy.

Post-mortem examinations prove that organic disease of the brain does not often exist in this complaint. The brain has often been found to all appearance healthy in epileptic patients who have died of other diseases. Epileptics appear to be as subject to other disorders as other individuals, and they generally die of some other disease than the one in question. This would seem to prove that they seldom have organic disease of the brain; for if they had, the epilepsy would be likely to carry them off instead of any other complaint. They do sometimes have disease of the brain, but this is not common.

*Inheritance* is supposed to be among the causes of epilepsy. No one, I think, who is afflicted with this disease, should ever think of becoming a parent. It is a sad thing to be the means of perpetuating even a predisposition to so lamentable a disease.

Epilepsy is very often conjoined with a peculiar form of head; the forehead is low, and slopes back, so that there is a deficiency in the cerebral mass. In such cases there is also apt to be fatuity or idiocy. Some epileptics, however, have a well-developed brain.

*Age*, evidently, has an influence in causing epilepsy. It is very apt to occur at about the time of puberty. It comes on much oftener in the young than old. Very seldom does it originate in old age.

*Sex* has been regarded by some as having an influence in inducing this disease. But medical authorities are divided on this point. Dr. Elliotson asserts that it is more common among males than females, except when it occurs in young children and infants. Of thirty-seven patients Dr. Elliotson had treated in hospital practice, twenty-seven were males and only ten females. Dr. Wood, of Philadelphia, also gives similar testimony. But there are others who hold that females are most subject to the disease. Statistical tables are not yet sufficiently extended to settle the disputed point.

*Celibacy* has by some been supposed to predispose to epilepsy. If solitary vice is not unfrequently a cause of this disease—as it doubtless is—those who live single would be more apt to have it on this account. It is to be remembered, also, that epilepsy is often a bar against marriage; so that in some cases, at least, patients are unmarried because they are epileptic, instead of being epileptic because unmarried.

This is one of that singular class of maladies that may propagate itself by sympathy or imitation. This is a remarkable fact. Neither does it require that a patient should have been affected with the disease before. True, one who had had it would be more subject to an attack than those who had not; but some who never experienced any thing of the disease whatever, get it simply by seeing another have a fit. In this way the disease has been known to run through a boarding-school, or the ward of a hospital. In a poor-house in Holland, the disease got among the children in this way, and Boerhaave could not succeed in arresting it till he heated an iron red-hot in the presence of the children, declaring at the same time, with great solemnity, that he would burn the first and every one that should be attacked.

Dr. Hardy, of Bath, England, has given a case in which a strong, healthy man was hired to take care of an older patient who had suffered frequent and exceedingly violent paroxysms of epilepsy. He remained with the patient night and day, and at the end of seven weeks became himself epileptic in a very high degree. An acquaintance of his, of equally robust make, but some years older, occasionally visited the parties. In a fortnight from his first visit he also was seized with similarly violent attacks.

Epilepsy is very liable to impair the mind. In some cases the mental powers fail early, while in others the decay is so gradual it can scarcely be perceived, even by those who know the patient best.

If the fits occur but seldom, the disease continuing a long time, the mind may retain its accustomed powers to the last. Julius Cæsar and Napoleon are said both to have been subject to epileptic attacks.

Among *feigned* diseases, epilepsy is one of the most common. Impostors of various kinds often pretend to have epileptic attacks, that they may excite the compassion of others, or get rid of some duty. Mendicants go about the streets of a city, and numbers of times the same day feign to have an epileptic fit, and thus get a good deal of money from the charitable and credulous. Sometimes they manage in this way, with the hope of getting into a hospital, where they can live idly, and be comfortably housed and fed. It is quite easy for an impostor of this kind to grin and throw his legs about, at the same time foaming at his mouth, with a piece of soap in it. Now what is remarkable in these cases is, that on the principle of sympathy these rogues are sometimes caught in their own trap. The fits which were at first voluntary, after a time become involuntary and uncontrollable, the patient thus having the real disease.

Epilepsy is liable to be confounded with hysteria; but there are several marks of distinction that may in general be readily observed. In epilepsy there is the peculiar frothing at the mouth; the motions are altogether involuntary; sensation is wholly lost; the features are distorted in a peculiar manner; the face is flushed, and the respiration is difficult and apparently quite suspended. (See, also, remarks on Hysteria in this volume.)

*Treatment.*—This regards, first, the management during the fit; second, the treatment to be employed in intervals between the attacks.

Patients often wound their tongues dreadfully during the paroxysms of this disease. One of the first things, therefore, should be to interpose a piece of wood or other substance between the teeth.

Epileptic patients are often much stronger during the fit than they are at other times. In some cases it requires three or four strong men to hold a lad in his teens. It is advisable, therefore, to have help enough at hand to manage such a patient.

With reference to the principle of treating the epileptic fit, the same general course should be observed as in the hysterical paroxysm; for an account of which the reader is referred to the remarks on that subject in this work.

Cold affusion upon the head, in the manner recommended in hysteria, is highly useful. We know that in such cases there is turgescence and too great fullness of the blood-vessels in the brain. Cold, by its constringing effects, drives away the superabundance of blood, thus moderating and shortening the fit. The effect of cold on the



nervous system in these cases is also beneficial; it rouses the dormant powers of the system, and aids in preventing the debility that follows such attacks.

After the paroxysm has passed off, it seems to be of benefit to allow the patient to take a good sleep. In the violence of the spasms and contortions, we are to suppose a great amount of vitality is expended. Hence it is that the patient desires to sleep after the paroxysm has passed off. After severe pain, muscular effort, and convulsions, sleep is nature's own method of restoring the vital powers.

The question is often asked, Can we cure epilepsy?

Medical records are rather silent as to the curability of this affection. Cases, however, have been restored; sometimes doubtless by the spontaneous efforts of nature; in others by the treatment employed.

It must be admitted that drug-medicaments have thus far obtained but little credit in curing epilepsy, except for a transient period. At one time a medicine has had a great reputation, and numbers of the profession, to their great joy, have thought that a specific had been discovered for the intractable disease. But in the end all has been delusion. Dr. Good tells us, when he wrote, "that about a century ago *stramonium* was esteemed every thing; half a century ago it declined greatly in its reputation, and has of late been rising into esteem." If Dr. Good had lived till the present time, he would have seen the drug again passing into disrepute.

It should be remembered that this, like all other nervous disorders, is a disease of debility. How in the name of common sense I ask, can drugs be used to fortify the general health? The thing is impossible. We will admit, however, that in some cases epilepsy may have been cured by a poison, on the principle of creating a new disease. Arsenic, no doubt, has cured obstinate skin diseases in some cases; but then what havoc was made with the viscera internally? It is robbing Peter to pay Paul; the patient is better off by far with his original disease.

It appears that the principle of counter-irritation has, in some cases, been useful in epilepsy. Dr. Good tells us that, in several instances, an accidental burn has answered the purpose of a surgical escharotic, and fortunately proved a radical cure. If a person wishes to have this method tried upon him—that of making a running sore upon some of the fleshy parts of the body, it should be done with the hot iron, caustic potash, or the concentrated mineral acids. Of course the physician will have to perform the operation for him. To use blisters, tartar emetic, and the like, substances that are absorbed into the system, and

which are liable to cause mischiefs in other parts, would not be well. The common escharotics affect only the part to which they are applied. After all, this treatment by counter-irritation is a poor affair, compared with a course of water-treatment and the hunger-cure combined.

After all, tonic-treatment, that which is calculated to restore the vital energies of the system, and improve the general health, is that which is mainly to be depended upon in effectually curing this disease. We are informed by Dr. Bell that sea-bathing, which, properly managed, is a valuable tonic means, has cured the disease when it occurred before puberty.

One of the peculiarities of this disease is, that the patient is apt to be troubled with a most voracious appetite. He eats and eats at the table as if he would never get satisfied—four or five times as much probably, in many cases, as an ordinary person would do. Nor is he satisfied at his meals, but gets food of whatever kind and whenever he can lay his hands upon it, even if he has to steal in effecting his object. It need hardly be said that in order to cure such a case, the most rigid change must be instituted and carried out, otherwise little good will be done. The hunger-cure, properly practiced in such cases, promises well.

I am persuaded that epileptics had better restrict themselves as nearly as possible to vegetable and farinaceous food. Even milk is too rich and stimulating to be used much as an article of diet by such patients. One elderly gentleman with whom I am acquainted in this city, who was formerly epileptic, considered that he cured himself eighteen years ago by diet and good general attention to his health. He had used medicines a good deal, but these did him no good. He adopted a very spare diet, omitting meat I think entirely, and also milk. He found by experiment that this latter article was certainly productive of attacks. He has never used it since. He is firmly of the opinion that he could bring the disease back upon himself, although he has had no attack for eighteen years, simply by using this article of food.

#### CHOREA—ST. VITUS' DANCE.

*Chorea* (from a Greek word signifying "a dance") consists in "an alternately tremulous and jerking motion of the face, legs, and arms, especially when called into action, resembling the grimaces and gestures of buffoons, and usually appearing before puberty." In common English the disease is called *St. Vitus' Dance*, in French, *Dance de St. Guy*, in consequence of the cure performed on certain women of disordered mind, upon their paying a visit to the chapel of St. Vitus.

near Ulm, in Swabia, and exercising themselves in dancing from morning till night, or till they became exhausted. It is said that in these cases the disease returned annually, and was annually cured in the same way.

The accounts of this disease, as given by some of the older medical writers, are at least amusing. The paroxysm of dancing, we are told, must be kept up, whatever be the length of time, till the patient is either cured or killed; and this also whether she be young or old, in a state of virginity or of parturition; and in the growing energy of the action, we are further told, that stools, forms, and tables were leaped over without difficulty, if they happened to be in the way. Felix Plater tells us that he knew a woman of Basle afflicted with this complaint, who on one occasion danced for a month together. In this exercise it was found necessary to hire musicians to play in rotation, as well as various strong sturdy companions to dance with the patient, till they could stir neither hand nor foot. Perhaps the most remarkable case of this kind on record was given by Dr. Watt in the "*Medico-Chirurgical Transactions*," in which a girl, ten years of age, kept up the most extraordinary movements and exercises for five weeks, sometimes for fifteen hours a day.

Dr. Good mentions a singular case of this disease that was cured in something the same way as the French woman above referred to. The morbid movements were in measured time, and constituted a sort of regular dance as soon as music was struck up, but ceased instantly upon a change of one tune to another, or upon a more rapid roll of the drum, which was the instrument employed on the occasion, than the morbid movements could keep up with. Advantage was taken of the last part of this very singular influence, and the disease was cured by a perseverance in discordant or too rapid music.

*Symptoms, cause, etc.*—Usually the disease commences with convulsive movements of the face or one of the limbs, and then gradually extends until it affects the whole frame. The features take on all sorts of ridiculous forms, the patient appearing as if she were "making up faces." These are, however, convulsions, because there is neither mirth nor mockery in them. These motions alternate with an apparently quiet and vacant look in some cases. It is often impossible for the patient to feed herself while the fit is upon her, and it may require two or three persons to give the nourishment or medicine, one or two to hold the arms, and the third to seize upon the favorable opportunity for putting the spoon into the mouth. If one wishes to look at the tongue, the patient may have to make several attempts before she can open her mouth; the tongue darts out suddenly, and is drawn back as

quickly; the jaws snapping together in the same way. If the patient attempts to *walk*, she will very likely have to *run*, the same as happens in *paralysis agitans*. If one part is held, other parts are affected the more. Any mental agitation is almost sure to increase the difficulty; the presence of the physician in particular is apt to make trouble, on account probably of the fact that a doctor is always expected to do something of a revolting kind. Sometimes the skin of the chin and breast is rubbed off by the friction of one upon the other.

Usually the convulsions of chorea are suspended during sleep; but this is not always the case. In those instances in which the paroxysms keep on in the night, they are much less severe than during the day. But Dr. Elliotson informs us that he has seen cases so severe that the patient could not maintain herself on the bed, but would roll off if she were not well strapped down upon it.

Chorea is, for the most part, a disease of youth. Some say it may happen to a child as early as the fourth year, others in infancy even. It is most common from the sixth to the fifteenth or sixteenth year, usually it occurs before puberty, and the change that takes place in the system at this period is very apt to put an end to it. Now and then it begins in adult life or old age, but these cases are not common.

In duration, it may last for a few days only, or for weeks, months, or years, and in some few cases through adult life. Much will, of course, depend upon the treatment and general management of the case. The disease has a strong tendency to cure itself. When it continues for a long time, it is thought to weaken the mental powers, causing also, in some cases, imbecility, epilepsy, paralysis, and other nervous diseases. At all events, it is found in connection with those in severe cases. In adults it is seldom cured if allowed to go on any considerable time.

The disease occurs more frequently in girls than boys; some have said in the proportion of five to one, others four to one. Others still have made out their tables a little different from this, but from four to one may be safely stated as being near the truth.

*Causes.*—Terror is beyond all comparison the most frequent *exciting* cause of chorea. Not unfrequently have parents and others been the cause of an attack by purposely frightening the child. It is sometimes connected with worms and other disturbers in the stomach and bowels. The irritation of second dentition sometimes causes it. It has been attributed in some cases to solitary vice, and no doubt truly, for that practice tends powerfully to derange the nervous system. In some cases it is connected with painful menstruation. It has been known

to follow a blow or fall on the head, caused in some of these cases probably by the injury done the brain, in others by the fright.

The *predisposing* causes of chorea are as numerous as the influences that act to deteriorate the general health. "Whatever tends to debilitate the system generally, and to impoverish the blood," Dr. Wood well observes, "may be considered, in connection with age and sex, as predisposing to chorea, through the frequent disturbance which such a state of system occasions in the nervous centers." Hereditary predisposition is also to be mentioned as one of the causes of this disease.

*Treatment.*—In this disease, as all others of any importance, the most powerful drugs of all kinds have been tried. Patients have been bled, salivated, narcotized, and purged without measure or stint. If we read the best of medical works up to the present time, what do we find in regard to the treatment of this disease? Precisely what we might expect; that the authorities are as contradictory on the subject as can be well conceived of; there is nothing fixed, showing the whole matter to be one of empiricism and doubt. In saying this, however, I do not assert that medical men have never cured chorea; nor do I say it is not possible for a drug to cure it. The cures, doubtless, have far oftener come from the diet, air, and exercise recommended, than from any other cause.

Dr. Watson speaks of chorea as belonging to that class of diseases which a variety of drugs are supposed capable of curing—those, namely, which tend to terminate in health. "I believe that many cases of chorea—most cases," says Dr. Watson, "would at length get well without any aid from physic; I believe also that many of the boasted specifics have been quite innocent of any share in the recovery of the patients to whom they were administered."

The great principle of treating this disease, is to improve the system at large, and particularly to fortify the nerves. The nerves are always weak in this disease, that is, the patient is nervous. Says one author, in speaking of chorea, "the instrument is not broken any where, but it is slackened, jangling, and out of tune; and we often can restore its harmony by bracing it up again."

Now, in order to cure this disease, we have in the hydropathic method a great variety of resources. The rubbing wet-sheet and wet frictions, generally, are to be highly recommended for their antispasmodic and tonic effects. The wet-pack, properly managed, is valuable for its *soothing* effects. There is, in fact, no hydropathic process which can not be brought to bear in this disease, as we find it in different cases.

\*The cold shower-bath has been highly recommended by authors gen-

erally in this disease, but the advice thus given is, in most cases, altogether too indefinite. This remedy is one of the most severe of the hydropathic appliances, and is always a powerful engine for harm or good, accordingly as it is applied. In some cases it is certain to make the patient worse; in others it cures. The general rule for employing it is to see that the patient has a good and permanent reaction after it. Sometimes the patient becomes warm soon after it, and then afterward becomes cold, in which case it is liable to do more harm than good. If the shower is decided upon, a safe method is to commence with it at seventy or eighty degrees.

*Acute chorea*, according to Dr. Bell, may be promptly subdued by sea-bathing. The chronic stage, although not removed, is greatly ameliorated by this means, in conjunction with suitable exercises, common and gymnastic, including swimming. Dr. Wood, and various other authors, also mention the good effects of sea-bathing. It should be managed, of course, upon scientific principles, according to the nature of the case. As with other potent remedies, what might be valuable for one, would in the case of another produce only harm, and perhaps dangerous effects.

It is important that the state of the digestive organs be well looked after in treating these cases. Sometimes the appetite is voracious; in other cases fickle; and in still others it is quite lost. All these things should be attended to in the proper way. If there is costiveness, it should be cured in the quickest and most effectual manner. If menstruation has occurred, and the function is deranged, the treatment should be directed in such a manner as to correct it.

It is said that electro-magnetism has cured cases of chorea; but in this kind of treatment I have had no experience as to applying it in this disease.

### CONVULSIONS.

By the term *convulsion* is meant a disordered state of the muscular tissues characterized by violent involuntary contractions, alternating with relaxations. Convulsions attack both the voluntary and involuntary muscles, but more frequently the former. Tetanus, hysteria, chorea, and epilepsy are called *convulsive* diseases, because in each of them the muscles take on a convulsive action. In this place, however, we are to consider more particularly those fits of muscular contraction and relaxation which are not connected with any other recognized disease.

These symptoms happen at all ages, but they are by far more frequent in children before the conclusion of the first dentition. Hence

we read in medical works of *infantile convulsions*. But there is nothing essentially peculiar in this form of the affection—the same general principles of pathology and treatment apply equally well to both young and old.

*Symptoms, Course, etc.*—The attack may come on suddenly, but usually there are certain signs of nervous disorder that precede it. More commonly the voluntary muscles of the whole or greater portion of the body become affected; but in some cases the spasms extend to one side, to a single limb, or to the face only. During the “fit” the face is in most cases pale; but it may be purple or livid, the lips bluish, and the face swollen.

Convulsive attacks vary much as to duration; they may last a few minutes only, or continue with little intermission, as it were, for days together, and the patient yet recover. The average duration of these attacks has been stated at from five to twenty minutes. There may be only a single attack, or several in quick succession. As in other convulsive diseases, after the fit has passed off, the patient inclines to sleep in consequence of the nervous exhaustion that has taken place. The patient may also be somewhat comatose for the time under these circumstances; but children are sometimes as well and lively, apparently, immediately after the attack as they were before it.

Convulsions do not often end fatally unless they are connected with some other disease. In such cases it is not the convulsions that destroy life, but the malady with which they are connected. In almost all of those cases in our city reports in which it said “Death by Convulsions,” there has been some other and more formidable disease.

*Causes.*—If we look at the fact that convulsions are vastly more frequent in large towns and cities than in the country, we shall not be at a loss in discovering many of the causes which lead to these attacks. We know that in all large cities the air is necessarily more or less impure; and we know also that the milk and many other kinds of food are much inferior to that of the country. The water, too, is often of an inferior quality, and if taken from the wells, almost absolutely poisonous. Impure air, want of out-door exercise, bad food and bad water, these may be stated as being among the prominent predisposing causes of such attacks.

The *exciting* causes of convulsions are also numerous. One of the most frequent sources is the irritation arising from teething. Acid and undigested matters and worms in the alimentary canal often give rise to them. Exposure to excessive heat, whether artificial or otherwise; exposure to wet and cold, fear, anger, fright, and other strong mental emotions; over-exertion, falls, and other accidents, may in-

duce an attack. Not unfrequently the cause is to be looked for in the milk of the mother or nurse. If the one who suckles the child is suffering from a bad, depraved state of general health, the child will be certain to become unhealthy, and very likely convulsions will be the result. Convulsions in the infant have been known, over and over again, to be caused by medicines administered to the mother. The preparations of antimony are especially apt to have this effect. In such cases, the poison, we have reason to believe, is actually conveyed to the child's stomach through the milk. Purgative and other irritating drugs administered to the child, not unfrequently have the same effect. Terror and other sudden and powerful mental emotions in the mother may deteriorate the milk in such a way as to bring these fits upon the child.

I wish here also to note that *tobacco* is put down by several authors of eminence as one of the causes of these attacks in adults.

*Treatment.*—"It has been doubted," says an able author, Dr. Eberle, in speaking of children, "whether any course of treatment during the convulsive paroxysm is capable of shortening its course, although it might mitigate its violence, and perhaps obviate a fatal termination." These remarks hold good, doubtless, so far as drug medication is concerned, but that convulsions have been cut short, almost as if by magic by cold water, we have abundant proof.

"In the convulsive fit of infancy, the affusion of cold water, so far as I have seen," observes Dr. Good, "may be much oftener resorted to with perfect safety than the fears of mothers will allow, and be found much more successful in a hot, close, unventilated nursery than the more popular prescription of a warm-bath; and when I have not been able to proceed thus far, and the warm-bath has been tried repeatedly in vain, I have frequently succeeded by taking the little infant in my arms and exposing him naked, or as nearly naked for a few moments, to the air of the window thrown open, to allow it to blow upon him. The great diminution of sensibility which prevails at such a time prevents all danger of catching cold; while on the contrary, the little patient is usually revived by the sudden rush of the external air, and the fit in many cases ceases entirely."

Dr. Currie informs us, that in the convulsions of children he found the cold-bath a most useful remedy, whether the disorder originated in worms or other causes. He had seldom known it to fail in stopping the paroxysms, at least for some time, and thereby giving an opportunity of employing the means fitted to remove the particular irritation. In early infancy he used it with caution, and generally by



affusion, tempering the water when the weather was cold. In general he made the applications of cold in this way sudden and transient, and employed means subsequently to secure reaction. When the vital energy seemed much exhausted, he avoided the remedy entirely. He gives us the following case as a specimen of the disease, as it affects children from eight to twelve years of age, and differing in some respects from that which occurs in early infancy:

“John Slater, aged eight years, came under my care in the month of January, 1782. About two years before, while at play, he was seized suddenly with a convulsion, which continued for half an hour, and had returned ever since at short intervals. Various means had been employed for his relief, but without success; the fits were become more and more frequent, a hemiplegia had supervened, and the intellect was apparently lost. For twenty-four hours he had lain in a state of insensibility, motionless on the left side, and the muscles of the other side only agitated by convulsive tremors. We put him immediately into a tub of cold water, which instantly stopped the paroxysm, and threw him into a deep sleep, out of which he awaked, after two hours, with a shriek, and fell into convulsions as before. The cold-bath was repeated, and afterward continued daily, present relief being always obtained by it. The interval was employed in administering the tin powder, which was worked off with calomel, but no worms were observed to be discharged. After several days, the convulsions returning, though with considerable abatement, I became dissatisfied with the mode in which the bathing had been performed, the size of the tub employed never having admitted of sudden immersion. On this account, we had the child conveyed to the public bath, into which he was thrown headlong, his father being stopped in the water to receive him. The temperature of the bath was 43° of Fahr. He was repeatedly plunged down and taken up for half a minute—was taken out of the water free of convulsion—fell immediately into a profound sleep, and awaked clear of complaint. In these respects this case resembles that of Gardner, first described. The paralytic weakness of the side remained, however, for some time but by the continued use of the bath it was at length entirely removed; and the powers of the mind, which had been totally suspended, gradually returning, at the end of six months were perfectly restored. He continued well upward of twenty months, was healthy and vigorous in body, and in the acquirement of knowledge remarkably acute. But on the 30th of December, 1783, his mother having struck him and frightened him much, he was seized in the night during sleep with general convulsion, in which he continued several

hours without intermission. Being again called to him, I employed the same remedy, but at the time of immersion the convulsion was not on him. Sleep and refreshment followed as before, but the paroxysm returned in the evening, though in a slighter degree. However, by perseverance in the daily use of the bath, and throwing him twice into the water with the *convulsions upon him*, in six days his health was restored.

"I lament over the fate of this amiable boy. He continued from this time three years and a half in perfect health, grew tall and strong, and showed great affection of temper and sensibility of mind. But being violently agitated with fear and grief, he fell again into convulsions in the month of July, 1787. I was sent for as usual, but was absent from town at a considerable distance. Having on former occasions launched him myself into the bath, his mother, a superstitious woman in a low walk of life, would not permit this remedy to be used till my return. He lay for thirty hours convulsed and senseless, and the first intelligence I had of his illness was accompanied by the account of his death."

It is to be remarked that Dr. Currie, as a deduction from the experiments he had made, insisted strongly on the principle, "that the benefit derived from the cold-bath in convulsive diseases depends on its being used in the paroxysm of convulsion; *that its efficacy consists in resolving or abating the paroxysm; and that when this effect is produced, the return of the paroxysm is greatly retarded, if not wholly prevented.*" All subsequent experience has proved the correctness of the principle thus plainly expressed by this able author.\*

Dr. Currie, it will be noticed, resorted only to the cold plunge and affusion, either cold or tempered, for patients who were particularly weak. His practice was consequently much more limited in its resources than the water-treatment as it is practiced at the present time. In many cases, the shallow-bath, rubbing wet-sheet, and other forms of applying water by wet friction, will be found to prove more successful than the above methods of this author. Cold affusion on the head, particularly when the part is hot and the patient not very weak, is a valuable remedy in many of these cases. Cold injections, if the patient is not particularly weak, and in other cases the tepid, should be freely used in all convulsive attacks. It matters not so much whether the bowels are constipated or otherwise, the effect is

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\* Since Dr. Currie's time the nitrate of silver has been much more freely used than it had been in convulsive diseases, but it has not answered the expectations of those who appear to have entertained high hopes concerning it. I know no one of reputation who has any confidence in it for cases of this kind.

good. In all the water management of these cases, of course, we should do no violence to the system, and the treatment should be managed prudently, according to the patient's constitution and the nature of the attack.

It need hardly be remarked in this connection that in treating cases of convulsions, whether of the old or the young, any thing like restraint in clothing should be removed. In fact, the sooner the patient is made nude the better, in order that he have the stimulus of the air upon the skin. In cases of infants, it is particularly necessary that the air be kept as fresh as possible, and in most cases even cold. Dr. Good's remarks on this subject are in point.

With reference to the *warm-bath*, which has been so much resorted to in these cases, it is to be remarked that it is often a valuable remedy, but very seldom so useful as the cold or tepid form. The reader if he is not well versed in these distinctions, is referred to the remarks on the "Temperature of Baths" in another part of this work. Throughout society there is a vast deal of vagueness as to the meaning of the words "hot," "warm," and "cold," as applicable to baths. Even physicians often exhibit the most culpable ignorance in these matters, as hot-baths have no place in the treatment of convulsions. In cases where people, in the absence of a physician, do not dare to venture upon the use of cold water in treating the convulsions of children, they may resort to tepid; and at the same time cold to the head, and will be certain of doing good. *Partial applications* of water have been found useful in the treatment of the convulsions of children. Dr. Eberle, who had ample experience in the treatment of children, tells us that the good effects of warmth to the feet in such cases are always much enhanced by cold applications to the head. "While the feet and legs are immersed in warm water," he observes, "a piece of flannel (linen is better), wet in cold water, should constantly be applied over the head and temples. These measures are especially important in cases attended with symptoms of sanguineous congestion in the head, and can not be omitted without losing one of our most efficacious remedies in such affections." "Not unfrequently," continues this writer, "these applications moderate the violence of the convulsions at once, and bring them to a speedy and favorable termination." Another writer of celebrity observes, "I believe I have rescued children from a state of great danger by the incessant application of cold to the head." It should be remembered, however, as a most important practical fact, that it is only when there is a degree of heat and tendency to sanguineous congestion in the brain, that cold is useful in the way described. If the opposite state of things exists, cooling ap-

plications might prove dangerous, and could, at least, only accomplish harm. Cold frictions upon the spine are useful in convulsions.

#### PUERPERAL CONVULSIONS.

What is denominated the PUERPERAL CONVULSION in obstetrical science—that is, convulsions occurring either during pregnancy, at the time of labor, or soon after—is among the most fearful of all diseases if we are to judge from the results of allopathic practice. Says one author, Dr. Meigs, “It never occurs without carrying dismay among all those who take a near interest in the patient; whom it exposes to the greatest risk, by the violent affections of the brain, with which it is connected.” And still another, Dr. Collins: “There are few circumstances more calculated to alarm the practitioner or excite terror in the friends of the patient than the occurrence of convulsions during the progress of labor; and the result, both with regard to the mother and child, prove the danger serious.” Too often, indeed, it happens that this disease proves suddenly destructive; “that the fatal blow is struck at the very onset, and that some women never speak nor exhibit the smallest sign of reason or sensation from the moment of the invasion, but sink at once into the stertorous, apoplectic sleep that leads rapidly to the sleep of death.”

Now, as in all other diseases, so with regard to this, it is far better to ward off an attack than to cure it. If a woman will persist in living in violation of almost every one of the physiological laws; allow herself to be continually fretful and peevish, and angry, perhaps, that she has become pregnant, surely she will have herself, and not the Creator, to blame if she should be attacked in this way.

Thus far I have known no women who lived and was treated hydropathically, to have convulsions either during, before, or after labor. I can not but think that the hygienic management of the puerperal state has much to do in warding off this most-dangerous complaint. If a woman, after she finds herself with child, continues to go on in a course of full feeding, tea and coffee drinking, neglect of exercise, and free indulgence in marital pleasures, she must assuredly be more liable to convulsions than one who pursues throughout a prudent course. It is to be remarked in this connection, also, that over-exertion and too scanty fare may in some cases cause the disease. So, also, of accidents, fright, and other powerful emotions of the mind.

It is proper, also, to understand that the puerperal convulsion is most apt to come in *first* cases, at the time when the woman has least experience in matters of this kind. Dr. Collins tells us that “of nineteen cases recorded by Dr. Joseph Clarke, sixteen were first children.

Of thirty-six by Dr. Merriman, twenty-eight were first children. Of thirty by himself, twenty-nine were first children. So that of the eighty-five cases, seventy-three were first pregnancies." Ought not young women, therefore, to be better instructed in all the matters pertaining to childbirth than is generally the case nowadays?

Regarding the treatment of this disease, not much is to be said in this place. All kinds of convulsions are to be treated on the same general principles, whatever the cause. The great thing is by cold water, wet-hand frictions, and the like, to rouse the blood into a better and more general circulation. Pouring cold water on the head would seem to promise well in these cases, because the black blood stagnates in the brain in a remarkable manner; nor should any of the before-mentioned appliances be omitted if the case should prove obstinate. Bleeding, which has been so much resorted to in these attacks, is surely a lame method of relieving the brain, compared with the hydropathic appliances.

#### CATALEPSY.

CATALEPSY (from a Greek word signifying a seizure) is by some reckoned as being only a form of hysteria. It is, however, treated in medical books generally as a separate disease. It is characterized by a loss of consciousness, more or less complete, with a peculiar rigidity of the muscles, which causes the body or any portion of it to retain the same position in which it may have been before the attack, or in which it may be placed after it. It is usually connected with some other disorder of the nervous kind, such as hysteria, somnambulism, insanity, etc. It may attack the whole body at once, or any one of its single parts.

This disease affects females only, for the most part, the same as hysteria; although, as in the latter affection, males are now and then subject to it.

*Symptoms.*—In the cataleptic fit—for the disease comes in paroxysms, like hysteria—the patient becomes stiff like a statue, sitting, standing, or lying, according as the case may be. There is usually a considerable degree of stiffness, yet the limbs may be moved; and if this is done they retain the same posture in which they are placed, however strange or apparently painful the position may be. The features sometimes appear compressed; at others ghastly, the muscles of the face retaining the same appearance, whatever grimace or expression may have been put on.

Dr. Gooch has recorded an interesting case of this disease. The patient was a lady twenty-one years of age, who had been often preg-

nant, but had only borne one living child, and was now confined after the delivery of a dead child in her seventh month of gestation. "A few days after our first visit," says Dr. Gooch, "we were summoned to observe a remarkable change in her symptoms. The attendants said she was dying or in a trance. She was lying in bed motionless, and apparently senseless. It had been said that the pupils were dilated and motionless, and some apprehension of effusion on the brain had been entertained. But on coming to examine them closely, it was found that they readily contracted when the light fell upon them; her eyes were open, but no rising of the chest, no movement of the nostrils, no appearance of respiration could be seen. The only signs of life were warmth and pulse; the latter was, as we had hitherto observed it, weak, and about 120 beats; her feces and urine were voided in bed.

"The trunk of the body was now lifted so as to form rather an obtuse angle with the limbs (a most uncomfortable posture), and then left with nothing to support it. Thus she continued sitting while we were asking questions and conversing, so that many minutes must have passed.

"One arm was now raised, and then the other, and where they were left there they remained: it was now a curious sight to see her sitting up in bed, her eyes open, staring lifelessly, her arms outstretched, yet without any visible sign of animation; she was very thin and pallid, and looked like a corpse that had been propped up, and had stiffened in this attitude. We now took her out of bed, placed her upright, and endeavored to rouse her by calling loudly in her ears, but in vain; she stood up, but as inanimate as a statue; the slightest push put her off her balance, and no exertion was made to regain it; she would have fallen if I had not caught her.

"She went into this state three several times; the first it lasted fourteen hours, the second twelve, and the third time nine hours, with waking intervals of two days after the first fit, and one day after the second; after this the disease resumed the ordinary form of melancholia; and three months from the time of her delivery she was well enough to resume her domestic duties."

Catalepsy varies a good deal as to intensity in different cases. In some instances the muscles are so extremely rigid that it requires great power to overcome the spasm; in others, the rigidity is but slight. Respiration and circulation are usually more or less affected, and in some cases so much so that the patient has been supposed to be dead. The bodily warmth remaining, and the limbs retaining the position in which they are placed, serve to show the true nature of the attack. A piece of cold clear glass held before the mouth and nostrils will be cov-

ered by condensed moisture, if respiration is not extinct. This is a valuable test. Those cases in which the individual has been supposed to be dead for days, and after which he has recovered, have been nothing more nor less than cataleptic.

This disease, like other nervous disorders, has sometimes been feigned. John Hunter discovered a case of this kind. "It was in St. Bartholemew's Hospital. Mr. Hunter, suspecting the impostor, began to comment before the surrounding students, on the strangeness of the circumstance that the muscles remain rigidly in the position in which they are placed; and as the man stood with his hand a little extended and elevated, he said, "You see, gentlemen, that the hand is supported merely in consequence of the muscles persevering in that action to which volition had excited them prior to the cataleptic seizure. I wonder," continued he, "what additional weight they could support!" So saying, he slipped the noose of a cord round the wrist, and hung on the other end a small weight, which produced no alteration in the position of the hand. Then, after a short time, with a pair of scissors, he imperceptibly snipped the cord. The weight fell to the ground, and the hand was as suddenly raised in the air, by the increased effort which volition had excited for the support of the additional weight. Thus was it manifested that the man possessed both consciousness and volition, and the impostor stood revealed.

I at one time attended a mesmeric exhibition in this city, at which the operator was in the habit of stating, night after night, to the audience, that he could magnetize his subject's (a lady's) arm in such a way that, when extended, it would become so perfectly rigid that we might hang any weight upon it we pleased, it would retain its position, and that if we should take off the weight, no matter how suddenly, the arm would remain in precisely the same extended position. This he could make all apparent enough when he experimented himself. Being on a committee of examination in the case, I hung a weight upon the arm of the patient the same as the operator had done; but as soon as I had done it, I cut the twine by which the weight was suspended; upon which the arm flew up into the air in such a way as to prove that the patient had made a strong exertion to support the weight. This I had suspected, which proved to be perfectly true, as in Hunter's case.

One of the devices that have been proposed to detect a patient when feigning this disease, is to throw her into a cistern of cold water. If the case is genuine, it has been supposed that the patient will go to the bottom, but if otherwise, that she will struggle about, and endeavor to get out of the water. But this test is not at all reliable, since, in

all convulsive nervous diseases, it is one of the best things in the world to throw a patient into cold water. Hence the patient might be cataleptic and yet struggle about, because the water had broken the paroxysm as she went in.

*Treatment.*—This should be managed for the most part the same as in hysteria. If there is great rigidity of the muscles, a large amount of wet-hand friction may be necessary. The water should be used cold.

### ECSTASY.

In this form of nervous derangement the patient is not wholly lost to external impressions, but rapt and absorbed in some object of the imagination. The muscles are sometimes relaxed, sometimes rigid, as in slight tetanus; but the loss of voluntary power over them is not complete or universal, for he sometimes speaks in a very earnest manner, or sings. The patient is, as it were, out of the body at times, engrossed in some high object of contemplation. This is the state in which nervous subjects—more commonly females—are sometimes thrown when under the influence of animal magnetism; and, as a medical teacher of celebrity remarks, “grave authors assure us that ‘the intelligence which then deserts the brain, concentrates itself in the epigastrium, or at the tips of the fingers; that people in that state read letters which are placed upon their stomach or applied to the soles of their feet; answer oracularly enigmatical questions, describe exactly their own internal organic diseases, and even foretell future events.’” I take it that all who are able to take on what is called the “clairvoyant state,” are in the ecstatic state when in that condition; and I am well persuaded that it is a morbid one which had in all cases better be avoided. I have long noticed that the more mesmeric subjects are operated upon, the more nervous and feeble they become.

*Treatment.*—So much has the imagination to do in causing this state, it can usually be avoided if the patient wishes to do so. As a preventive measure, the nerves should be strengthened in all possible ways, and all forms of nervous excitement should be avoided.

### TRANCE.

This is one of those singular forms of disease which we call *nervous*, and is connected with some derangement of the nervous function of which we know so little.

In trance there is continued insensibility for days, weeks, and even months. The patient is sometimes able to eat if food is put into the mouth, at other times not. Some open their eyes at times, when, it is



said, they see and know what is going on about them, although they can not speak or make motions of any kind. Sometimes the patient wakes for a few hours, has some power over volition, and then falls into the same state again.

Dr. Elliotson narrates a case of trance in which the subject—a female (for these strange things generally occur in females)—was presumed to be dead. Her pulse could not be felt, and she was put into a coffin; and as the coffin-lid was being closed, they observed a sweat break out, and thus saw she was alive. She recovered perfectly, and then stated that she had been unable to give any signs of life whatever, that she was conscious of all that was going on around her, that she heard every thing, and when she found the coffin-lid about to be put on, the agony was dreadful, beyond all description, so that it produced the sweat seen by the attendants.

*Treatment.*—In these cases, as in hysteria, there is nothing that is at all comparable to water as a means of restoring the nervous power. The treatment should be similar to that for hysteria.

#### HYSTERIA—HYSTERICS.

*Hysteria* is derived from a Greek word signifying “uterus,” it having been supposed to have a peculiar connection with that organ. It is a disease to which females are more especially liable, although males are sometimes troubled with it, that is, if we are not over-nice in regard to the derivation of the term. As affecting females, it happens, for the most part, only between puberty and the cessation of the menstrual function. Perhaps no other disease is characterized by such extreme changeableness of symptoms, which in some cases present to the uninitiated a truly alarming aspect, but which we may almost say are *never* connected with dangers.

Hysteria comes alike upon those who are pale, sallow, and feeble in appearance, and the “plump, rosy” patient, who looks as if she were in the enjoyment of the most perfect health.

This disease, like all others of a nervous character, varies indefinitely as regards severity. In some cases the symptoms are so slight that none but the patient herself is aware that she experiences them; in others the paroxysm is so severe, that to one not acquainted with the disease, it would seem as if death must be the inevitable result.

There are several reasons why this disease should be confined, for the most part, to the child-bearing period. It is generally connected with some derangement of the uterine function, and women do not experience this, as a general thing, except during that period in which this organ performs its peculiar offices. It is during this period that the

feelings and attachments are the strongest and most controlling. When, therefore, the uterus is performing its varied functions, and the mind is in its active and excitable state, the frame is most liable to become deranged in such a way as to produce the disease of which we are speaking.

Hysteria is more common among the unmarried than the married, partly because the latter condition is more favorable to health, and partly because married persons are usually more occupied, bodily and mentally, than those who have no "family cares" upon them. Marriage is the order of nature, and hence this result.

*Symptoms*—In ordinary cases the patient experiences a degree of nervousness which she can not explain, so that when any little excitement comes upon her she can not restrain herself from laughing and crying alternately, and almost in the same breath. At the same time she experiences a feeling as if a ball were rising in her throat, and threatens to suffocate her outright. After a period longer or shorter, according to the case, the "fit" passes off, the patient feeling as well as ever, perhaps, only a little weak.

In the severer forms of the disease the symptoms are all of a more aggravated character: she experiences great dejection of spirits, the tears being ready to flow at any instant; there is at the same time palpitation of the heart, nausea, and difficulty of breathing; perhaps, gradually and not unfrequently in a rapid manner these symptoms become aggravated, the patient actually feeling as if she must suffocate for want of breath. At this stage of the attack, she perhaps faints and becomes apparently as insensible as a dead person. In other cases the trunk and limbs of the body are turned to and fro, and agitated in a most remarkable manner. At the same time she may be impelled to laughing, crying, screaming, and making the most strange and incoherent expressions, and talking at a rate as if she had every thing to say and which must be said in the shortest possible time. These phenomena at length abate, the patient throwing up usually a large quantity of wind from the stomach. There is apt to be a severe pain in the head after the fit passes off. In other cases she passes into a deep sleep, after which she has little or no recollection of what she has passed through. It is not uncommon for the patient to be troubled with a severe hiccough in the course of an hysterical attack; and at its close it appears to be a good symptom if there is discharged a large quantity of limpid urine, as often happens. The patient may also, as the fit passes off, be attacked with a violent pain in the back; and this pain may extend from the spine to the sternum; or it may fix itself in the region of the stomach, becoming so severe as to cause a pale, cadav-

erous appearance of the countenance, clamminess of the surface, coldness of the extremities, and a feeble pulse. These symptoms vary of course indefinitely, according to the treatment employed.

It is not always easy, even for the most experienced practitioners, to distinguish hysteria from certain other diseases. In some respects it resembles hypochondriasis. It differs from the latter, however, in the following particulars: Hypochondriasis seldom comes on before the age of thirty-five, while hysteria is more common before this period. It comes on gradually and passes off as slowly; while hysteria is usually a sudden and fitful disease, and one which is much more quickly and readily cured than hypochondriasis. In the latter there is never that peculiar sensation of a ball rising out of the abdomen into the throat, that is so common in hysterical attacks. Hysteria is usually relieved by advancing age, while hypochondriasis is made worse by this circumstance.

In *hysteria* the convulsive motions are usually more or less subject to the will, while in *epilepsy*—a disease with which it is not unfrequently confounded—the motions are altogether involuntary. In the former disease sensation remains, while in the latter insensibility is complete. In hysteria the features are little or not at all distorted; in epilepsy the reverse is the case. There is also a peculiar trembling of the eyelid in hysteria, which does not at all happen in epilepsy. In the former the respiration is sighing and sobbing, often mixed with crying and laughing; in the latter the respiration is of a stertorous, difficult kind.

The hysteric fit is known from fainting, as in the latter there is an entire cessation of the pulse at the wrist, a more contracted face, and ghastly countenance. In the latter, also, the patient comes more quickly to her senses, and the pulse gains its accustomed strength more readily.

It differs from apoplexy, inasmuch as in the latter affection there is an entire abolition of sensation and motion, a thing which could hardly happen in an hysterical attack. In apoplexy there is also great difficulty of breathing, accompanied by snoring, the pulse at the same time being quick, all of which are circumstances not found in the hysterical disease.

It is a curious circumstance, and one of practical importance, that hysterical women, when the fit is over, are liable to be attacked with a peculiar stiffness of the joints. These attacks are usually of an evanescent nature. Sometimes, however, they become very obstinate, causing both patient and physician a good deal of trouble. In some of these cases the disease is real, the parts being actually stiff,

and hotter than is natural ; in others it is only imaginary, and all that is necessary is for the patient to be made to believe that she can use the affected part as well as ever if she will only make the proper effort.

A great many women have become bed-ridden, and really a good deal weakened—by reason of their confinement and inactivity—with nothing but hysteria, which with a little resolution could have been thrown off in a day or two. Many of these cases, in which certain charlatans get a great deal of credit for curing bed-ridden women, who have falling of the womb, forsooth, according to the notion of these miracle-working mongers, have yet nothing more the matter with them than hysteria and its concomitant weaknesses. In England, too, matters are somewhat after the same sort, for Dr. Watson tells us that it has become notorious that scores of young women have been unnecessarily confined for months or years to a horizontal position, and have had their backs seamed with issues for supposed disease of the bodies of the vertebræ, who had really nothing the matter with them but hysteria, and who would probably soon have ceased to complain, if, instead of being restricted to that unnatural imprisonment and posture, they had taken a daily gallop on horseback.

I have often myself encountered these cases in this city, and patients have been brought to me a long distance from the country, in some cases on beds, to be cured. In some of these examples the patient is not able to speak a loud word for weeks at a time—so she thinks, at least. All sorts of pains and discomfort are complained of by them, and nothing suits them so well as to have some one, especially the doctor, listening to their ten thousand aches. Now, in many of these cases, a little water-treatment, with plenty of riding and other exercises in the open air, *at the same time making the patient believe we shall surely cure her*, soon effects the object. In some cases, however, the patient is so indolent, and loves so well to be considered sick, and to have a constant succession of great doctors about her—every one of whom must do something great that he may get a great fee—she can not be cured at all. Besides, it not unfrequently happens that women of this class are made really sick—not unfrequently incurably so—by the abominable courses of druggery to which they are subjected. It is not natural for a great doctor to go fifty or a hundred miles for nothing ; he must do some “great thing.”

A volume might be filled with cases showing how the matter works often with these bed-ridden subjects. A lady informed Dr. Watson of the case of an acquaintance of hers, a member of a family of distinction, who had been lying for a long time on her back ; that position

having been prescribed by some medical man for a presumed disease of the spine. She lost all power of using her legs, but got quite fat, as indeed well she might, for her appetite was remarkably sharp, and she lived chiefly upon chickens, and the number of chickens she devoured was almost incredible. She lived at a little distance from London, and at last Sir Benjamin Brodie was sent for to visit her. Now Sir Benjamin, as Dr. Watson said, is *up* to these cases; and he wished to see her *try* to walk; but she declared the attempt to do so would kill her. He was resolute, however, and had her got out of bed; and in a few days' time she was walking about quite well, and very grateful to him for his judicious conduct.

It is on the principle of hysteria that we are to explain those wonderful cures that are sometimes wrought by mesmerists, psychologists, certain religious fanatics, and others, in which it is alleged that after a patient has been bed-ridden for years, she is made to walk, perhaps in a single day. Now in this I do not say there is nothing in mesmerism or psychology, only that it is impossible thus to cure a *real* disease, one that is sufficient to make a patient helpless for months or years, *by any means*. But we do not object to the so-called cure, only let it pass for what it is.

Some of these cases are sad, and others disgusting to think of. It is not an uncommon thing for the patient to declare that she has retention of urine; and that she is suffering the greatest agony for want of ability to make water. In some cases no doubt the difficulty is real; indeed, the pulse shows that such is the fact—for I have myself more than one of them in this city; but in others the trouble is only imaginary, and in others still the patient wishes to have the medical practitioner pass the catheter from day to day, to gratify a morbid and prurient desire! It is strange to what an extent young women will sometimes go in these things. They have even been known to drink their urine in order to avoid being detected in their deceiving friends and the medical attendant, by pretending not to drink. The best cure in such cases is to leave them without pity or mercy, for nature will soon relieve the bladder of its contents, if the medical man will but persist in his course, that is, in the "let-alone" treatment.

It was remarked that hysteria affects women only for the most part. But there are exceptions to the rule. Cases of nervousness occur in men sometimes, which we can class under no other head.

It has happened every now and then, in cases of this kind, that some great fright, the approach of an army, a cry of fire, or some other overwhelming terror, has been sufficient to cause the patient at once to walk. When the joints have been affected in some of these cases, the

patient has declared that she felt a sudden snap, as if something gave way in the part, just before or just as she attempted to walk, after which she could get along very well with her locomotive powers.

*Causes.*—Much that has been said in the foregoing paragraphs will lead the reader to infer the principal causes of this affection. In general terms it may be said that powerful mental emotions, especially those of an unpleasant kind, excessive eating, indigestion, over-fatigue, too much sitting at work, costiveness, excessive draughts of tea and coffee, sitting up late at night, excessive sexual indulgence, and a thousand things of this kind may act both as predisposing and exciting causes of this nondescript disease. And hence it should be specially noted that, although the female as well as the male part of the community abuse themselves in a great variety of ways, often making themselves feeble and hysterical when there is no need whatever of their being so, yet drug-treatment must come in for a large share of the evil. Think of a patient being dosed for weeks and months with opium and other narcotics; how could she avoid, under such circumstances, coming out a poor, feeble, nervous creature, liable to an hysterical attack at any moment when the least unpleasant thing may happen? I repeat, if a woman wishes to keep clear of this miserable disorder, let her shun drugs as the very evil one, tea and coffee included.

It is a fortunate thing in our northern country that females do not, as a general thing, use tobacco. True, now and then one of the older ones can be found who smokes—at the recommendation of a doctor, perhaps. And some of the worst possible cases of hysterics are to be found among these old persons, who certainly ought not to have the disease so long after the uterus has ceased in its peculiar functions. I have known a pious old lady who would often have it that she was dying—in hysteria—and who would yet, long before the day was over, go visiting to her neighbors, sucking at her pipe a large proportion of the time—I would not undertake to say how many times in a day—not omitting to teach her nursing grandchildren and others to suck at the delectable smoke. I have no doubt this old lady, if she is yet living, will continue to *pray* and *smoke* to the very last of her mortal life, and that she would do this if all the doctors she ever knew or heard of should attempt to dissuade her from it.

In the South the use of tobacco among females is much more common than in the North. Think of a woman's *rubbing tobacco*, "dipping," as it is called, that is, with a wet swab or a wet finger, rubbing snuff in her mouth! This is done by many, more than people generally are aware of. A more nervous, peevish, irresolute, hysterical set

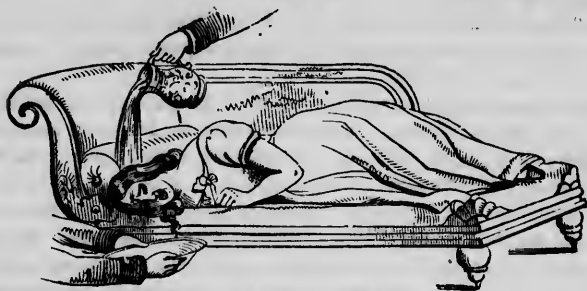
of women can not be found than those who disgust even themselves by the vile practice.

*Treatment.*—The treatment of hysteria is divided properly into two heads: first, that which relates to the paroxysm; second, the means of preventing the attacks.

In severe cases care must be taken that the patient does not injure herself during the spasms. It would be easy for her to do harm with her hands or teeth if she were not properly looked after. No time should be lost in "cutting the corset strings," or at least in loosening the dress. The sooner, indeed, the clothing is removed the better, because the air, by its tonic effect, tends to take off the spasm. No matter how cold it is, the doors and windows should be thrown open for time. It will be soon enough to go for "comforts" after the fit is cured. If it seems necessary, the hands and arms should be confined. If the patient can be made to swallow, the sooner she gets a good dose of cold water the better. If it is at all practicable, she should at once be placed into the shallow-bath, or, what answers very well, a good-sized wash-tub, the feet being left outside, if the tub is not very large. If the patient is quite feeble, the water may be moderated a little at first, but afterward it is to be used cold. In the water she is to be rubbed with as many wet hands as can be brought to bear upon her body, limbs, hands, and every part. The cramps are sometimes very severe in these cases, so that it is really a pitiable sight to see how the poor creature suffers. But there is need of courage, and the operators may be assured that the more they persevere with the wet-hand friction, the less the patient will suffer in the end, and the sooner the cure will be effected. After the spasms become quelled, the patient should be placed in the folded wet-sheet. This may appear uncomfortable to her at first; but, with the most mathematical certainty, it will *soothe* her system, and that too in a remarkable degree, if every thing is managed as it should be. There is no objection either, after the spasms are off, to her being made comfortable, and having warm bricks to her feet—but in no case *hot*. She will have a hundred times more to fear from heat than cold in an attack of this kind.

One of the best means of producing a powerfully sedative and anti-spasmodic effect in these cases, is to pour cold water freely upon the head, after the manner represented in the cut, fig. 26. There is no case on record in which the cooling measures have done harm. Dr. Smee, a celebrated surgeon of London, who recommends this practice, says that he once saw cold applied in this way for three hours, and the patient was quite well the next day. The water should not be poured from a height, as some would have it; passive cooling only is what is

Fig. 26.



TREATMENT OF HYSTERIA.

needed, as a local application, in all affections of the head. A wash-tub, instead of a bowl, should be used to receive the water, and we may use the same over and over again, if desirable; but it should not be allowed to get too warm.

In some cases the shallow-bath and the wash-tub can not be used; either they are not at hand, or the patient may be so unmanageable that she can not be operated on in this way. We have, then, other and valuable resources—for hydropathy is not a *one* remedy, as ignorant objectors have so often said. We have many and varied applications, and no two of them have precisely the same effects. But any one who understands the symptoms thoroughly, will never be at a loss as to what to do; he will be certain of doing at least some good, and *no* harm, which can not be said of drugs. In these supposed cases, then, the patient can be laid upon a bed, couch, cot, or the floor, even, upon a blanket, or something of that sort, while at the same time she is powerfully rubbed with rubbing wet-sheets; these should be changed often, so as to keep the water as fresh as may be. Even wet-hand rubbing, wet-towel rubbing, and the like, are very good substitutes for the shallow-bath.

Another important measure in these cases should be particularly mentioned, to wit, *clysters of cold water*; these may be used freely, without stint. Ice-cold clothes, placed upon the abdomen and genitals, are also highly valuable. These things are mentioned for the encouragement of those who may not be able to have the better and more powerful means before explained.

If we consult medical authorities on hysteria, we shall find that it would be almost impossible to use cold water amiss in these desperate cases, so great has been the success attending it.

We read in medical works—allopathic I allude to—of pouring pitch-



ers of cold water *from a height* upon the patient, buckets of water, and the like. In hospital practice, where there are bath-rooms at hand, this is done in some cases; but who would think of attempting it in a fashionable lady's sleeping-room in London or New York? This kind of practice may appear all well enough in a book, but *to put it into practice* is a very different thing. Besides, it is far from being the best kind of treatment; the prolonged shallow-bath, which can be given very well in a wash-tub, can be had in the humblest hamlet and the most costly palace alike.

I have been thus particular in my recommendation of the water-processes for the hysterical fit, first, because these cases are often of a most distressing nature; and second, because drugs are of no avail whatever in such attacks. True, some of the "backwoodsmen" in the profession are in the habit of resorting to calomel, opium, bleeding, ether, chloroform, assafoetida, valerian, hemp, hyosciamus, belladonna, conium, castor, musk, ammonia, aloes, or some other abomination in hysteria. But Dr. Guy, a celebrated London author, tells us that "Cold affusion is the only remedy which can be relied on, and is worth a whole pharmacopœia of antispasmodics."

I have elsewhere alluded to these cases of hysteria in which the joints become affected by being *permanently bent* or *incapable of motion*. Dr. Watson, referring to these cases, recommends the cold remedy in the strongest terms.

There is probably no disease of the nervous system that is more apt to be communicated from one to another by what we may call sympathy, or moral contagion, than this. It has been noticed in the wards of hospitals, that if one patient goes off into a fit of hysteria, a half dozen or more of the others who are of a nervous make will exhibit symptoms of a similar character. But this kind of hysterical chorus is found to be influenced a good deal by the character of those who have the management in such cases. A nurse who is all sympathy and pity for the patient will find herself much more troubled with such cases than one who is resolute. If it is understood from the first that *the cold affusion* is to be applied to all who become affected in this way, it will serve to keep the disease wonderfully in check; so that the really humane course, after all, is to be stern and resolute with those nervous subjects, for a mistaken sympathy and kindness only tend to encourage the attacks.

It has been remarked that married females are in some cases more subject to hysterical attacks during the period of pregnancy than at other times. Now this certainly ought not to be, pregnancy being a *natural condition*, and not one of *disease*. There must be wrong man-

agement in such cases; tea and coffee, no doubt, as well as improper diet, have a good deal of influence in these instances. But probably the most common and pernicious practice under such circumstances is that of connubial excess. "Total abstinence" is the only safe, and, I may add, the only consistent rule in such cases.

With reference to the *prevention* of hysteria, or, in other words, the medical management of cases during the period when the paroxysms are not present, little need be said in this place. In general terms, the whole management, from beginning to end, should be that which is best calculated to fortify the general health. Sailing, journeying, riding, and especially *labor with the hands*, are all useful. A most important point is to avoid in all possible ways the *causes* of the disease. The water appliances are all useful, according to the case. The rubbing wet-sheet is particularly to be recommended, as in this disease the nerves are weak, and the *abreibung*, faithfully and perseveringly applied, is one of the most effectual tonics that we can have.

#### INSANITY.

The word *insanity* is derived from two Greek terms signifying *out of one's mind*. It is also sometimes called *lunacy*, *mental derangement*, *mental aberration*, *hallucination*, *alienation*, *madness*, *craziness*, etc.

Medical writers have experienced great difficulty in classifying the different forms of mental disease. A few well-established definitions, however, it will not be out of place to give in this connection.

*Mania*, called also *madness*, raving or furious, is that form of mental derangement in which the intellect is completely perverted on all subjects, and in which the patient is apt to be *furious* or *raving*.

*Monomania* consists in the intellect being deranged only on some one particular point. The individual may be sound in all respects, except in some trivial matter which it is not always easy to detect.

*Melancholia* is characterized by excessive gloom, mistrust, and depression, and is generally connected with monomania.

*Idiocy*, *idiotcy*, *fatuity*, or *dementia*, is characterized by a more or less complete obliteration of the moral and intellectual faculties. It is more commonly a defect of original conformation, but in some cases follows an attack of mania or melancholia. In some cases it is symptomatic of organic disease of the brain, which has come on subsequently to birth. Some idiots are able to articulate a few words, and manifest some degree of mentality. Others appear to possess scarcely any susceptibility whatever to external impressions. With some, *dementia* is that form of fatuity that occurs after birth, and idiocy that which is congenital.

The heads of idiots are generally of a peculiar shape. Such an one

is represented in fig. 27, and will appear more striking in contrast with fig. 28.

Fig. 27.

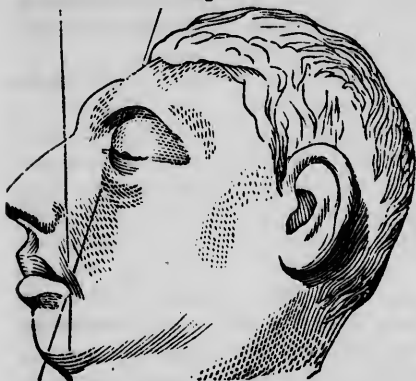
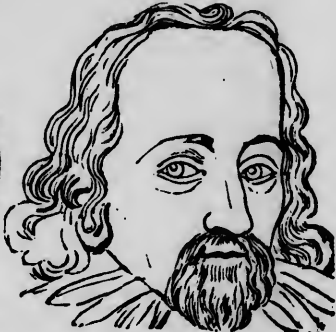


Fig. 28.



It would appear, also, that this form of insanity is most apt to come upon those whose heads are not well cultivated, as we say. Fig. 29 represents such a head, with its opposite, fig. 30.

Fig. 29.



Fig. 30.



Insanity, as a general thing, comes on gradually ; but in some cases it attacks suddenly. The person may be seized with an irresistible propensity ; but for the most part there is something wrong in the person's manner and behavior before he becomes really insane. He is apt to be more talkative than is natural, and bursts out frequently into foolish laughter. Some, also, are more taciturn than usual in these circumstances. "With some there is a quickness of manner, quite un-

natural to them; they seem to hurry at every thing, and do nothing either in work or business as it should be. Sometimes such persons are extremely civil and obliging, and ask their friends to accept of favors that are quite unreasonable. Some also are passionate and unkind in their manner, doing the strangest things imaginable. There is also, in some cases, a lack of affection toward relatives and friends, as one of the symptoms preceding mental derangement.

In the various forms of insanity, there can probably be detected in all cases a greater or less degree of bodily derangement. Usually the breath is very offensive, and some regard that there is a *peculiar* smell of body always connected with mental derangement of this kind. The tongue is foul usually, and the mouth filled with a viscid mucus, which the patient almost constantly endeavors to spit out. In some cases the patient spits vast quantities. There is often extreme appetite and thirst; but in other cases there is an almost entire absence of both hunger and thirst. Constipation is one of the most common troubles with the insane. There is sometimes great muscular strength, much greater than the individual would be able to put forth in a state of health. *Sleeplessness* is a common ailment in these cases. Crazy persons sometimes pass weeks and even months scarcely appearing to sleep at all.

Usually in insanity there is an inflammatory condition of the head. The head is hot, the eyes and cheeks flushed, the pulse full and firm and often quick, and the urine high colored, showing signs of general fever. The patient experiences pains and a great variety of uneasy sensations in his head—cracking, splitting, bursting, throbbing, stabbing, etc. It is very common for insane persons to be troubled with noises in their ears and deafness. They often speak of flashes of light before the eyes; and double vision is not an uncommon symptom with them. Sometimes they complain of having a bad smell about them, and in other cases lose the olfactory sense altogether. Insane persons are said to be generally fond of snuff.

Insanity does not often occur in childhood or in old age; the young and the middle-aged are far the most subject to it.\* It may continue

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\* According to M. Georget, the ages at which insanity is most frequent, are between thirty and forty, next between twenty and thirty, and lastly between forty and sixty. The admission of insane patients into the different hospitals in England and France took place at the following ages, according to this author.

| Number. | Ages.                |
|---------|----------------------|
| 856     | from 10 to 20 years. |
| 1106    | " 20 to 30 "         |
| 1416    | " 30 to 40 "         |
| 861     | " 40 to 50 "         |

| Number. | Ages.                |
|---------|----------------------|
| 461     | from 50 to 60 years. |
| 174     | " 60 to 70 "         |
| 85      | above 70.            |

for a few days or weeks only, for months or years, or for the remainder of life. Insane persons do not often live to be old, although there are many exceptions to the rule; they sometimes reach the ages of seventy and even eighty years. As a general thing, the longer insanity lasts, the less hope there is of a cure. Dr. Rush speaks of spontaneous cures after eighteen or twenty years. In one case he witnessed a cure after insanity had existed nine years. Insanity, however, is apt to terminate in idiocy, fatuity, or dementia, all of which mean essentially the same thing. Not unfrequently the disease terminates in palsy or apoplexy, the attack proving fatal.

Mental derangement is sometimes *continued*, as we say of fever; at other times remittent or intermittent. People sometimes become not only *less* insane than at other times, but wholly free from it. These intervals of insanity are said to be *lucid*; that is, the patient when free from the mental disorder, or nearly free from it, is said to have a "lucid interval."

Persons suffering from insanity often fancy the strangest things imaginable. Dr. Elliotson mentions the case of a butcher who firmly believed he saw a leg of mutton hanging from his nose. Another is recorded in which a baker fancied himself a large piece of butter, and refused to go into the sunshine lest he should melt. A painter thought he was so much putty, that he could not walk without becoming compressed like so much putty. Some have fancied themselves glass, and would not sit down lest they should crack. Dr. Rush mentions the case of a man who would have it that he was a plant, and when a friend got up behind on a chair and made water on him—because he was a plant, and needed watering, as he said—the man was made so angry that he got well of his madness.

Every one has read the life of that good and great man Luther, who was yet notwithstanding insane on one point. He believed that he often conversed with the devil, and that the devil often came to him to torment and trouble him. None of Luther's opponents ever gave him a tenth part as much trouble to answer his arguments as the devil did. For hours and hours would the "old adversary" argue with Luther to prove to him that he was a hypocrite and no saint. Sometimes he drove him away by music: for, as Luther said, the devil did not like music, which he was very fond of. Sometimes he drove him away by scoffing and jeering, for, being a proud-spirited old fellow, he would not bear treatment of this kind. Sometimes he would bring a bag of nuts, and shake it at Luther when he wanted to sleep. Even at this day they are in the habit of gravely showing, in the cell where Luther was confined, the ink that was spattered upon the wall when

Luther threw the inkstand at his head. It is well worthy of remark that the old fiend was most apt to trouble him after he had been, as he said, "eating and drinking all day," not knowing what to do. If Luther had had tobacco in connection with his beer and high living, he would probably have seen several devils instead of one as he did.

Dr. Ferriar, of Manchester, had a patient who believed that he had swallowed the devil, and who would not discharge the contents of his alimentary canal through a benevolent feeling, lest he should let him loose into the world. One patient declared he would not make water lest he should inundate the country round about. A similar case was relieved by lighting a fire round the patient and making him endeavor to put it out lest the house should be burned down. Some have believed that there were frogs, serpents, or other reptiles within them; and one woman fancied there was a whole regiment of soldiers within her. There is no end to the strange notions which insane people sometimes have.

*Causes.*—Among the *predisposing* causes of insanity, hereditary predisposition is by far the most prominent. Says Dr. Elliotson, "Insanity, in a large number of cases, is hereditary, and I do not think it so difficult to wear out the hereditary predisposition to any other disease as it is that to insanity. It seems to require more of dilution—more crossing of the breed than any other affection, for it comes on ever in the third and fourth cousins; and although it may have disappeared in one generation, it so frequently returns, that there is the greatest danger of its arising in almost every other descendant. Scrofula, gout, and various other complaints will cease from good management and in favorable circumstances; but as to the disposition to insanity, it is certainly the most *undilutable* that can be imagined."

In proof of the hereditary nature of insanity, Dr. Burrows says that six cases out of seven in his private practice were of that class. In the Saltpêtrière, in Paris, there were 320 female lunatics, 105 of whom had the disease hereditarily. Out of 264 cases treated by Esquirol in his private practice, 150 were hereditary.

It has been regarded by many medical writers that the number of the insane is in a direct ratio with the civilization and refinement of a nation.

It is admitted on all hands that in a savage state man is much more free from mental disorder than in a civilized state. Yet, if we look at the statistics of insanity as it occurs in different countries, we shall be at a loss to account for the differences we observe. Thus, as Dr. Dunglison informs us, in New Hampshire, when the population did not exceed 280,000, the number of lunatics was estimated at 600; in

Connecticut, in a population of 298,000, at 700; in Massachusetts, with a population of about 612,000, there were 1000; in Virginia, taking the population at 1,200,000, it was estimated that there were, in 1838, 600 to 800 insane persons. The colored population is probably included in this estimate, and it is, I believe, a well-established fact, that the Africans are not so subject to mental derangement as the whites.

According to M. Brierre de Boismont, in England, the proportion of the insane to the whole population is 1 in 783; in Wales, 1 in 911; in Scotland, 1 in 573; in the Rhenish Provinces, 1 in 1000; in Norway, 1 in 551; in France, 1 in 1000; and in Italy, 1 in 3,785. There is certainly a singular difference between these countries as regards the proportion of insane—a difference which it is by no means easy to account for.

The influence of *sex*, as regards predisposition to insanity, has been a question among medical writers. Dr. Dunglison has collected the following statistics on the subject. In France, according to M. Esquirol, the ratio of insane women to insane men is as 14 to 11. In Italy, on the other hand, the ratio of insane men to insane women is as 5,718 to 5,067. In Holland, again, the ratio of females to males, according to M. Guislain, is as 29 to 34. In Great Britain and Ireland, as 13 to 12; and in the United States it has been estimated as 2 to 1. From the results of inquiries in different parts of the civilized world, it would seem that there is not much difference between the sexes. "Of 76,526 cases, enumerated with this view," observes Dr. Dunglison, "37,825 were males, and 38,701 females, the ratio of males to females being thus as 37 to 38 nearly."

*Matrimony*.—Statistical reports show that celibacy favors insanity. According to M. Despartes, out of 1726 female lunatics, 980 were single women, 291 were widows, and only 397 were married. Out of 764 males, 492 were bachelors, 59 were widowers, and 202 were married.

The *natural constitution of the individual* often has much to do in causing mental disease. Persons of the nervous or bilious temperament are—other things being equal—more subject to insanity than those of an opposite cast. Those who have naturally any strong passion in excess, such as pride, ambition, and love of applause, are supposed to be more subject than others to mental disorder. The rich and cultivated, in consequence of being usually more idle, and having more occasions of nervous excitement, are more subject to it than the poor and ignorant.

Dr. Rush informs us that, after much inquiry, he had not been able

to find a single case of *madness, melancholy, or fatuity* among the North American Indians.

*Occupation* appears to exert a great influence in producing insanity. The proportion of insane is vastly greater among those whose calling or profession leads them to great and constant mental toil or turmoil of the passions. Physicians, clergymen, politicians, poets, actors, etc., are peculiarly liable to mental alienation. According to Dr. Wood, in the Report of the Pennsylvania Hospital, there were 17 physicians out of 936 patients, or one to about 55. In the Institution at Utica, in this State, the number of physicians has been 10 out of 1181, or about 1 in 118. The proportion of physicians to the community at large in this country is 1 in about 500, showing that this class of persons are much more liable to insanity than the average of society.

It is said that persons become insane in the United States earlier in life, on an average, than happens in European countries. The cause assigned is, that the Americans are more in the habit of helping themselves and commencing business at an earlier age than is customary in the old countries.

*Injuries upon the head* are liable to cause insanity; and this, when it does happen, may occur after the lapse of several years. In such cases the mental disorder is apt to be more persistent and difficult of cure than when it comes on soon after the injury has been inflicted. There are also cases on record in which the intellectual faculties have been brightened by such an accident. Dr. Pritchard was informed, on good authority, that there was a family not far from Bristol, England, consisting of three boys, who were all esteemed to be idiots. One of them received a severe injury of the head, after which his faculties began to brighten. He at length became a man of good talents, and practised as a barrister. The brothers remained idiotic.

*Intermarriage among blood-relations* is a fruitful cause of insanity. This we see exemplified in that worthy body of Christians, the Quakers, or Friends, who intermarry in this way much more than the community at large, and among whom mental derangement and imbecility are said to be common.

*The use of alcohol* is well known to be a frightful cause of mental derangement in the progeny. It has been observed that a large proportion of the insane have been children of those who had been in temperate.

*The use of mercury* has, by some writers of eminence, been considered a cause of mental derangement.

*Venereal indulgence* is, on all hands, admitted to be a frequent cause of mental disorders, and especially of dementia. That a large num-



ber of cases are referable to the practice of solitary vice, medical writers who have had much experience among the insane, almost uniformly assert. According to Dr. Woodward, late of the Massachusetts State Lunatic Hospital at Worcester, and Dr. Awl, of the Ohio State Lunatic Hospital, the proportion of cases of this kind is from twenty-five to twenty-seven per cent. The late Dr. Brigham, however, was somewhat skeptical on this point, although he admitted that the insane are frequently seen to practice this habit, and that it has sometimes at least most baneful effects, hurrying them onward to idiocy and death.

*Excessive heat* is well known to be a cause of mental disorder. It has been observed by the army medical officers that if a recruit is drafted for a torrid region, who is predisposed to insanity, the disease is very apt to become developed in the hot climate. Many of the French soldiers, it is said, returned home from the campaign in Egypt insane, from the effects of the hot sun to which they were there exposed. In all countries more cases of insanity occur during the hot than the cold season; and excessive heat always exerts a pernicious influence upon patients of this kind.

*Catamenial suppression*, especially if it have taken place suddenly, is liable to bring on this disease. Sometimes insanity comes on at the commencement of the menstrual discharge, and ceases at the critical period. Some have become temporarily insane at about the time they met with a change of life. Others, again, may be said to have a degree of insanity at each recurring catamenial discharge.

*Pregnancy*, in some cases, favors mental disorder; and some women always become more or less insane while in that condition. The difficulty passes off after the cause is removed. Mania has followed weaning in some cases; and undue and too prolonged lactation on the other hand has caused the same result.

*Puerperal insanity* is that form of mental disorder which is connected with childbirth. It comes on more frequently in such cases the third or fourth day after delivery, although it may happen at any time during or soon after lactation. Of ninety-two cases of this kind given by Esquirol, thirty-seven happened within the first two weeks; seventeen between this period and two months; nineteen from the end of the second to that of the twelfth month, and nineteen after the child was weaned. The only peculiarity of this kind of insanity is a greater tendency to general prostration than happens in cases ordinarily.

The *exciting* causes of mental derangement are very numerous. These are either *moral* or *physical*, the former of which are by far the most frequent. Among these may be mentioned disappointment, fear,

grief, anxiety, despair, the loss of property and friends, failure in business, betrayed affections and unrequited love, abused confidence and the triumph of enemies, anger, revenge, jealousy, hatred, public disgrace, over-indulgence of the imagination, severe study, undue excitement in religious matters, perplexing metaphysical speculations, too much thinking upon subjects of mysterious and marvelous nature, such as spirit rappings, etc., these are among the causes that develop mental disease.

There are some remarkable cases on record illustrative of the effects of terror, and other strong emotions of the fearful kind, in producing mental disease of the child. Among the most remarkable instances of this kind are those quoted by Dr. Combe, from Baron Percy, a distinguished French army surgeon and professor, as having happened at the siege of Blandau, in 1793. In addition to a violent cannonading, which kept the women for some time in a constant state of alarm, the arsenal blew up with a terrific explosion, which few could listen to with unshaken nerves. Baron Percy states that, of ninety-two children born in the district within a few months afterward, sixteen died at the instant of birth, thirty-three languished from eight to ten months and then died, eight became idiotic, and died before the age of five years, and two came into the world with numerous fractures of the bones of the limbs, caused by the convulsive starts in the mother, excited by the cannonading and explosion.

*Derangement of the digestive organs* not unfrequently give rise to insanity. This is particularly true of that form of mental disorder called hypochondriasis.

The *excessive use of tobacco* has been thought by several writers of eminence to be productive of mental alienation; and we may easily conceive such to be the fact, when we consider how powerful an effect this acro-narcotic stimulant exerts upon the nervous system. The use of opium has no doubt often caused mental disease.

*Loss of blood* has been considered by Dr. Marshall Hall a cause of mania.

*Too great indulgence in sleep* has been enumerated by Magendie as a cause of lunacy and idiccy. This, by its stupefying effects upon the brain and nervous system, may doubtless in some cases lead to these results.

*Want of sleep*, Dr. Brigham regards as the most frequent and immediate cause of insanity. "Notwithstanding strong hereditary predisposition, ill health, loss of kindred or property," says Dr. Brigham, "insanity rarely results unless the exciting causes are such as to occasion loss of sleep. A mother loses her only child, the merchant his

fortune, the politician, the scholar, the enthusiast may have their minds powerfully excited and disturbed, yet if they sleep they will not become insane."

*Spirituuous liquors*, we all know, proves a frequent cause of one form of mental aberration—*delirium tremens*; and according to the Reports of many of our public institutions, dram-drinking is laid down as a frequent cause of insanity. In the Massachusetts State Lunatic Asylum one fifth of the cases have been attributed to this cause.

*Treatment*.—Not far back in the world's history, insanity was considered "one of the most awful dispensations of the Almighty." Consequently all efforts at explaining and removing it were considered not only wicked, but useless. Thus it was that neither science nor philanthropy effected any thing desirable in regard to either the prevention or cure of mental disease.

The results of modern experience, however, are very different, and show in the most conclusive manner the fallacy of the doctrine of the divine origin of this species of disease. In the Asylum for Lunatics at Worcester, Massachusetts, of the patients admitted during the year (November 30th), 1835, whose insanity was of less than twelve months' duration, the recoveries were eighty-two and a half per cent.; and for the old cases fifteen and a half per cent. During the year 1839 there were admitted 418 cases, of duration less than one year; of these there were discharged cured 340, or eighty-one and a third per cent. The deaths of recent cases being deducted, the per centage is eighty-four and three-quarters; "And if," according to Dr. Woodward's Report, "the recent cases now in the hospital, which are convalescing or have been recently admitted, all of which have had insufficient trials, are deducted, the per cent. will be ninety-two and two thirds. Of all the patients that have been in the hospital, the recoveries have been forty-one per cent." In the McLean Asylum, at Charlestown, Massachusetts, the ratio of recoveries in cases of not over one year's standing was in 1837 eighty-six and a half per cent.; and of all cases thirty-eight per cent. These estimates may on the whole appear somewhat too favorable, owing to the time being too short to enable an accurate judgment to be formed, and the patient being too often dismissed or withdrawn by their friends to admit of a perfect cure. Still, it is admitted on all hands that the results of the treatment of insane persons in the institutions of the United States have been in a high degree satisfactory. May we not hope that ere long still more improved methods of practice shall be instituted in this branch of the healing art, and which shall lead to a still higher degree of success in this noble work?

The great difference between the curability of recent and old cases

should be especially borne in mind by all who are interested in this subject. Dr. Dunglison, to whom I am indebted for most of the statistical facts in these paragraphs, informs us that at the York West Riding Asylum in England, of 318 cases that had existed from one to 30 years, only 26 were cured. Of 173 old cases in the Bloomingdale Asylum, near this city, in 1835, only 16 were restored. It has been asserted by M. Esquirol, on the strength of accurate observations in some of the large insane establishments of France, that after the disease has passed the third year of duration, the probability of cure is scarcely more than one in 30.

But notwithstanding the fact that old cases of insanity are generally so unfavorable as regards a hope of cure, no case should be prejudged as incurable before a full and faithful attempt has been made at restoration. Many cases have been recorded, and many more that have not been, in which cures have been effected after the disease had existed during a period of years. M. Pinel mentions the instance of a lady who had passed twenty-five years in a state of mania, and who was suddenly restored to her senses. M. Esquirol refers to a case of a young woman who had been fourteen years in a state of dementia; and who, one morning on rising, ran and embraced her mother, calling out, "Oh! mamma, I am cured." The same observer, while he was at the Salpêtrière, in Paris, knew of a woman who had become insane from the period of puberty, and who was restored at forty-two, the critical period in her case.

Authors do not agree as to the influence of age on the curability of insanity. M. Esquirol regarded that very few persons recover who were attacked at the age of sixty and upward. The experience of this author is probably borne out by the observations of medical writers generally. Dr. Woodward, however, affirms that in the Worcester Asylum, of which he had charge, persons attacked with insanity after forty years of age, recover in much greater proportion than those attacked before that age.

A fact of some importance as regards the treatment of insanity, is, that according to tables drawn up on a somewhat extended scale, it appears that females exhibit a greater relative chance of recovery than males. This, however, does not appear in the records of all asylums, for in some a large proportion of cases of delirium tremens are received, which are of course males, and very generally curable.

The efforts of modern philanthropists in the profession have extended not only to the restoration of ordinary cases of insanity, but even cretins and idiots have been subjected to a course of treatment and discipline that have produced most remarkable results. Under the well-

directed efforts of Dr. Juggenbuhl, founder of an institution at Abendberg, in Switzerland, for the cure and education of cretins, it has been proved that in these cases intellectual manifestations may become developed, the existence of which might never have been suspected. In France, also, this subject has received a good degree of attention. Dr. Conolly, writing to Dr. Forbes, in the *British and Foreign Medical Review*, January, 1845, gives an account of a visit made by him at the Bicêtre, a large insane asylum in Paris. He says: "The first part of the Bicêtre to which I was conducted was a school exclusively established for the improvement of idiots and epileptics, and nothing more extraordinary can well be imagined. No fewer than forty of those patients were assembled in a moderate-sized school-room, receiving various lessons, and performing various evolutions under the direction of a very able schoolmaster, M. Seguin, who is endowed with that enthusiasm respecting his occupation before which difficulties vanish. His pupils had been all taught to sing to music; and the little band of violins and other instruments by which they were accompanied, was formed of the old almsmen of the hospital. But all the *idiotic* part of this remarkable class also sang without any musical accompaniment, and kept excellent time and tune. They sang several compositions, and, among others, a very pretty song written for them by M. Bartelle, was sung by them on entering the class-room. Both the epileptic and the idiotic were taught to write, and their copy-books would have done credit to any writing-school for young persons. Numerous exercises were gone through, of a kind of military character, with perfect correctness and precision. In all these cases," he adds, "the crowning glory of the attempt is, that while the senses, the muscular powers, and the intellect have received some cultivation, the habits have been improved, the propensities regulated, and some play has been given to the affections, so that a wild, ungovernable animal, calculated to excite fear, aversion, or disgust, has been transformed into the likeness and manners of a man. It is difficult to avoid falling into the language of enthusiasm in beholding such an apparent miracle."

In the medical management of insanity, the physical and moral treatment are alike important. Attention to either one of these, with neglect of the other, would be of little avail in the majority of cases.

If we examine the different works on the medical management of this disease, we shall find that the treatment, so far as during medication is concerned, has been, from beginning to end, a tissue of experiments, and that there is even yet a state of unfixedness in the matter, which exhibits any thing but science in this department of the healing

art. Thus bleeding has been, and still is, strongly recommended in cases of insanity when there appears to be any inflammatory action or other undue excitement in the system. Some of the first among medical writers on insanity have recommended it in the strongest terms, and have bled insane persons to an enormous extent. Others, again, of equal celebrity and honesty, have as strenuously argued against the practice, from all of which it is to be inferred that some cases bear depletory measures well, while others are injured by them. But that an insane person has ever been restored by bleeding, would not be an easy matter to prove, while that numbers have been either destroyed or injured by the process is sufficiently evident. We who know something of the effects of hydropathy, understand how it is that water can readily be made to produce all of the good effects of bleeding, and more, without any of its bad effects.

With reference to the use of water, in the cure of insanity, some facts of experience will prove instructive to the reader.

Dr. Currie, our favorite author on the subject of water, gives a case in which the results of the method of employing it were highly satisfactory. The case was that of a man of very irregular habits of life, who was admitted into the asylum at Liverpool in a state of furious insanity. His disease was supposed to have been brought on by excessive drinking. It was necessary to use very powerful means of coercion, and the most powerful medicines, opiates, cathartics, emetics, etc., were given. Dr. Currie commenced the case June 2d, 1796, and went on to the 21st of July, at which time he tells us that, "perplexed with these extremes (the patient getting alternately better and worse, and bearing in mind the success of the cold-bath in convulsive diseases), I ordered it to be tried on the present occasion. The insanity returning with great violence on the 21st, he was thrown headlong into the cold-bath. He came out calm and nearly rational, and this interval of reason continued for twenty-four hours. The same practice was directed to be repeated as often as the state of insanity occurred." On the 23d the patient was again thrown into the cold-bath in the height of his fury as before. As he came out he was thrown in again, and this was repeated five different times, till he could not leave the bath without assistance. He became perfectly calm and rational in the bath. "This patient," continues Dr. Currie, "continued with us some time afterward, bathing every other day, and taking the oxide of zinc in small quantities. He never relapsed, and was discharged some time afterward in perfect health of body and mind."

Dr. Dunglison, in speaking of the cold douche as one of the very best tranquilizers that can be employed in cases of furious insanity

maintains that a column of water of the size of the arm, or even much less, made to fall from a height on the head of the furious maniac, will almost always tame him. One of the most frantic cases that had ever fallen under his care was tranquilized by the column proceeding from the spout of an ordinary teapot, made to fall upon the head from the elevation of a few feet.

The cold dash, administered by pouring water on the head of the patient from some height, was used by Esquirol with entire success. The patient, a girl afflicted with mania, and of a nervous temperament, was placed—with a garment covering her—in a common wash-tub, and water was poured in small quantities on her head till it covered her body, and shivering ensued. On a second application of this method, which was for some time resisted, it was followed by a deep sleep, accompanied by copious sweating; and when the patient awoke she was found to have recovered her senses.

"The douche, in these cases," according to Esquirol, "produces its effects by the action of the cold and the percussion. It exercises a sympathetic influence upon the region of the epigastrium. It causes cardialgia, and desires to vomit. After its action ceases, the patients are pale, and sometimes sallow. It acts also morally as a means of repression, a douche often sufficing to calm a raging excitement, to break up dangerous resolutions, or force a patient to obedience. It is that class of the insane who are young, strong, and active, who require the douche. They experience, after having received it, a sensation about the head which is very agreeable to them, and often very useful. It is especially proper in cases attended with cephalalgia. The douche ought to be employed with discretion, and never immediately after a repast. It is necessary to obviate constipation before employing it. Its use ought to be continued but a few minutes at a time, and its administration never left to servants; they may abuse it, and we ought not to be ignorant that the douche is not exempt from grave accidents."

I quote these remarks of Esquirol for the double purpose of showing the good effects of intensely cooling applications upon the head, and of giving in this place an additional caution in regard to the use of this powerful resort. I assume that cooling of the part can be better practiced—that is, we can, by passive means, lower the temperature of the head to any desired extent. In doing this, if we are at all doubtful as to the nature of the case, we are certain, at least, of avoiding the dangers consequent upon the over-stimulation of the head by the powerful remedy in question. Esquirol himself admits that "the long-continued application of ice to the head calms the headache and

fury, which resist bloodletting, general baths, and the *douche*, especially in the commencement of mania, when there is redness and heat of face, threatening cerebral congestion."

More recently, M. Brierre de Boismont has attracted the attention of the profession to the subject of cold douching in insanity. The account I take from Dr. Bell, as given in the late edition of his work on Baths. This gentleman, in a memoir read to the Academy of Medicine, points out the mode and results of his treatment in seventy-two cases. It consisted in subjecting the insane to an immersion in a bath of 82° to 86° Fahr. for several hours, and to douching or irrigation with cold water on the head at a height of about four to six feet. The duration of both the baths and douching was from twelve to fifteen and eighteen hours. The douching was suspended when the patient became tranquil; the duration of the treatment was from one to fifteen days; the medium number of baths for each patient, six. According to M. Brierre de Boismont, if eight or ten baths have been taken without benefiting the patient, their use should be suspended, at any rate for awhile.

Of the seventy-two cases treated by this author, thirty-five were of acute mania, of which thirty-two were cured; eleven of delirium tremens, all of which were cured; ten of maniacal exaltation, of which four were cured. Of monomania, ten cases terminated favorably. Four cases of periodical monomania were not benefited by the treatment.

It does not appear from the account whether the water was allowed upon the head with any other force than that of its natural fall. At the low height from which it was admitted, the force would not be very great, a circumstance that would favor the action of the remedy.

*Sea-bathing* was used by M. Gaudet in the various forms of insanity with a satisfactory result in some, and amelioration in other cases.

From the foregoing facts and observations, it is plain that water, as a remedy for insanity, although it has been but little used, compared with bleeding, calomel, opium, etc., has been attended with far more satisfaction than that of the whole pharmacopœia combined. What like water can calm the body, and soothe it into a quiet slumber, when sleep has left the patient for days and nights in succession? What like water can invigorate the body, give a healthful appetite and digestion, and in all respects renovate and reinstate the vital forces in their original, pristine state? It is God's own remedy, which in his beneficence He everywhere, in the greatest abundance, gives to man. Happy will it be for him when he learns how to use it aright.

In the physico-medical treatment of the insane, we should proceed



on the same general principles as in any other case of bodily derangement. We are to use the rubbing wet-sheet, the wet-pack, the shallow-bath, the affusion, the plunge, the wet-girdle, clysters, and, in short, the whole routine of the treatment, *according to the nature of the case*. This, I need hardly add, needs knowledge, skill, experience, and good judgment in those who are to direct the treatment. In no department of the medical art are these more necessary than in this.

In those cases in which the insane refuse wholly to take nourishment, no little trouble is experienced oftentimes in getting them to eat. If food is left constantly in the presence of a patient of this kind, he will, in some instances, be tempted to partake of the nutriment, when in the ordinary way of offering it to him he would utterly refuse. Another method is to allow the patient nothing but milk-and-water, gruel, and other nutritious drinks, because an insane person can not bear thirst any thing like so well as he can go without food. In some cases, to prevent famishing, nutritious liquids have been introduced into the stomach by means of the stomach-pump, and the rectum by means of the syringe.

Sleeplessness, which is so common and distressing an accompaniment of insanity, can be controlled a thousand-fold more effectually by water, I must again remark, than opiates of the drug kind. Fatiguing employment during the day has a good effect in inducing sopor; but the use of blisters upon the neck, opium, assafoetida, camphor, valerian, etc., are worse than useless in the end, I maintain, and at best poor substitutes for the cool or cold-bath. In some cases, moreover, the warm-bath would prove highly serviceable; and in all the remedy must be applied according to the exigency of the case, the same great general principles being applicable in insanity as elsewhere.

*Employment*, where it is at all practicable, is of great service in the management of insane persons. It should be an object, therefore, in all insane asylums, to be able to give employment to all who are fitted for it. At the proper season of the year, agricultural and horticultural pursuits should be entered into for the double purpose of fortifying the general health, and giving a new turn to the thoughts, which are apt in such cases to dwell too much upon one topic. Workshops, likewise, in which the different branches of industry could be practiced, would be a great aid in institutions of this kind. The patients should of course not be overworked, and should be allowed to follow those kinds of manual labor with which they are best pleased. In all respects as little coercion as possible should be resorted to. It is now well understood that there are but few among the insane who can not be made to take some degree of interest in the ordinary affairs of life. "Fifty

years ago," observes a late writer, "it would not have been credited that numbers have attended public worship in the chapels of institutions for the insane, and conducted themselves with the greatest decorum, who in the halls were noisy, talkative, and profane."

It has been laid down as a rule by some, in the treatment of the insane, that their ideas and passions should never be excited in the direction of their delusion. The rule is doubtless a good one in most cases, but an exception may now and then be made with advantage. M. Esquirol mentions the case of a patient who fancied he could not suffer his urine to pass without the danger of provoking a second deluge, but who was prevailed upon to do it by being told that the town was on fire, and that he could in that way save it from total destruction. A patient presented himself at the Hospital St. Louis, in Paris, stating that he had a serpent in his belly. The attending physician, M. Cloquet, favored the idea, procured a serpent, and making a slight incision through the skin, pretended that he had extracted the reptile through it; the person was cured. These devices, however, will not succeed in all cases.

It has been one of the most gratifying results of the efforts of modern philanthropy to banish all unkindness in the treatment of the insane. The day of stripes, chains, and strait jackets is fast passing away, to take its place among the acknowledged barbarisms that are destined to be no more. For this improvement society is mainly indebted to that distinguished philanthropist and physician, M. Pinel, who some fifty years ago opposed the revolting management at that time universally in use in the insane institutions of Paris. His efforts at reform in this department were crowned with a degree of success which must have been most gratifying to the philanthropist and philosopher. During the stirring times of the French Revolution, in 1792, we are told Pinel, in the course of a few days, removed the shackles from fifty-three lunatics confined in the Bicêtre. "An unexpected improvement followed from a course previously thought impracticable, and even fatal. The furious maniacs, who monthly destroyed hundreds of wooden utensils, renounced their habits of violence; others who tore their clothes, and rioted in filth and nudity, became clean and decent; tranquillity and harmony succeeded to tumult and disorder; and over the whole establishment order and good feeling reigned."

It is now admitted on all hands that perfect and uniform kindness is the great panacea in the moral treatment of the insane. Among all who have the management of this class of patients, the deportment should be of the most cautious and civil kind. The patient should, in short, be treated as if he were sane, and in the kindest and gentlest

manner. If any thing like temper is exhibited toward him, it is certain to excite the same feelings in his own mind, which can not fail of making him worse. Says an able writer, "The attendants of the insane should exhibit in their deportment a mode for the insane to copy, not an imitation of the violence of insanity, which the patients will be the first to appreciate."

As to whether an insane person should be taken to a public asylum, the circumstances of the patient should determine. In many respects it is better for patients of this kind to be at an institution where particular attention is devoted to the recovery of the insane. There is, however, a sort of odium connected—though wrongly so—with having been at a public institution of this kind, which is liable to act unfavorably on the patient's mind in after life. In this respect, it is better if he can be cured at home.

#### HYPOCHONDRIASIS—LOW SPIRITS—VAPORS—WEARINESS OF LIFE—SPLEEN.

The hypochondriac or spleeny person is affected with pain in the chest and abdomen, especially under the false ribs, or, in other words, at the epigastrium—hence the name of the disease.

Hypochondriasis is a very common affection, for which reason it demands particular attention in this place. It is one of the most deceptive as well as troublesome disorders to which poor human nature is subject.

It is surprising to what an extent the fancies of the patient are carried often in hypochondriasis. He imagines himself to be afflicted with a great variety of disorders, particularly such as consumption, scrofula, cancer, urinary calculus, impotence, and the venereal disease. Sometimes he imagines that he has been poisoned in some secret or accidental way, or that the virus of hydrophobia has been communicated to him. In other cases he imagines himself to have been converted into some other animal or thing; some have supposed they were a tea-pot, and would be offended with any one who should express his doubts on the subject. Sometimes patients of this class suppose that they have been converted into a goose, cock, dog, cat, or other animal, and attempt to prove the fact by making noises and gestures in imitation of the animals which they claim to be. In other cases they believe the animal to be within them. Dr. Rush tells us that a sea-captain of Philadelphia would have it for many years that he had a wolf in his liver. Some have imagined they were a plant, and have taken their place in the garden, and insisted upon being watered like the rest of the plants. Others have believed themselves to be transformed into

grass. In some cases men have supposed that they inherited by transmigration the soul of some other fellow-creature, but much oftener that of a brute animal. A case happened in the Pennsylvania Hospital, in which the man formerly believed he was once a calf, and who mentioned the name of the butcher that killed him, and the stall in the Philadelphia market where his flesh was sold previously to his animating his second body. Hypochondriacs have sometimes believed in having no soul. Dr. Percival mentioned to Dr. Rush the case of a dissenting minister in England, who believed that God had annihilated his soul as a punishment for his having killed a highwayman who attempted to rob him, by grasping him at the throat. His mind was sound on all other subjects. In some cases patients have believed they were dead. But one of the most ludicrous of hypochondriacal fancies is that in which the patient supposes if he makes water he will drown the whole world. The most lamentable form of this disease is that in which the patient is tempted continually to make way with himself.

One of Dr. Rush's patients described with great accuracy his case, which was a mixture of the symptoms of hypochondriasis and hysteria.

"Sir—I write you to seek relief in a case of disease of the most inveterate though not uncommon nature. It is a nervous affection of the most obstinate kind. An apathy and torpor of the bowels and stomach, and a susceptibility of the mind exceeding description; loss of sleep to an alarming degree at times, and the consequent debility, despair, subsultus tendinum, and paralytic sensations in many parts of my body, are the principal evils I suffer. My mind is liable to be excited by trifling and unsubstantial causes—disposed to cleave to unpleasant usages—to dwell on dreadful consequences from really trifling circumstances—to be appalled with vain apprehensions, and to cherish disgusts and disagreeable associations; indeed, to labor under a *fixidity* of ideas which cause my misery.

"I was attacked in the winter of 1800 and 1801, and since that time have suffered an immensity of distress, with long intervals, however, of capacity for enjoyment. Moral causes are the sources of my afflictions. The barriers of reason are cobwebs to oppose to the intrusion of this host of enemies. Am I in a convivial company? I think of some unpleasant circumstances. Do I eat heartily? I still think. My mind can not rise above its customary state of feebleness. When I lie down, this fixed image presents itself. I am distressed, alarmed—my blood circulates rapidly—my brain is fired—a train of distressing ideas enter and seize my mind; I am, as it were, all nerve; the least noise is like a shock of thunder, so that for seven years I have

been in the constant habit of stopping both ears with wax ; with intervals, however, of strength to bear noise, and sometimes even I am, as I think, almost well. I am within a few days of forty-four years of age ; my appetite is always good ; I eat every thing, drink moderately of wine, have found no good from any regimen, though I have not pursued any regimen but a very short time.

"I go to bed ; my mind is distressed ; I get a little quiet, and perhaps I am disposed to rest. At the moment of my forgetfulness which produces sound sleep, this image strikes my mind ; I know what I am to suffer ; am alarmed ; my blood rushes through the jugular vessels ; I hear my heart beat, and feel it thumping the whole night ; my mind on fire, able to pursue no train of pleasant thought a moment ; I get worse ; despair ; think of nothing but my wretched condition, till at last I lose several nights' sleep ; my pulse is low and threaded, and at last nature makes an effort, and gradually restores me. Such is almost always my course.

"I can assure you that no cause of distress vexes my mind in which my conscience or my honor is implicated, or which would be even noticed by others. If I could indulge in religious duties and contemplations, to which my heart, my judgment, and natural disposition would lead me, I really believe it would cure me ; but previous to my first attack, near eight years ago, in a previous state of debility and nervous affection, which pressed hard on my spirits, I wished to read on religious subjects, until all at once impious and profane ideas struck my mind ; my soul recoiled—was shocked ; I tried to banish them ; nothing would do ; not a moment were those ideas absent ; at last they seized so fast that I lost many nights and days of sleep, and I was brought near the grave. I got better, and overcame, in some sort, this immoral influence, but shall never be able to indulge as I wish in religious duties. My heart often expands with enthusiasm, and then I taste of the joys of heaven. Now, sir, can this dreadful state of mind be cured ? Can I be made to possess less feeling, and more resolution to resist moral influences on the mind—to bear vexatious or distressing incidents, and to break this association, this *fixidity* of ideas ?

"My feet, particularly my left foot, are always cold ; and when I labor under great anxiety, both feet have, when warm in bed, a sensation as if they were asleep (as we say), which is very distressing. My whole left side is affected more than the other ; the auditory nerve of my left ear is affected curiously and unpleasantly with sharp sounds, as if the body touched the nerve ; I can not well describe it.

"If I could be tranquil, I should be well. Whenever I can be moved by ambitious prospects, or entertain a desire for distinction, or

any such passion, I am well. This is sometimes the case. When hopes or wishes of this sort take possession of my mind, they drive out all impressions ; then I feel well. Active employment, if I could get it, would cure me, but I know of none. When I feel well, I am uncommonly cheerful, playful, and happy."

Several years ago I made note of the following cases of hypochondriasis :

Some months since a very intelligent professional gentleman came to me, all in a tremor of excitement, and in relating his sufferings, said that there was in his mind one all-prevailing idea. A friend of his, a physician, while dissecting a dead body, had contracted, through a cut in the finger, a most loathsome secret disease. My patient, being told of this by his friend, became haunted night and day with the belief that he, too, should contract the vile affection in some unavoidable way ! Touch what he would, a door-latch, the hand of a friend, and even the food he ate, the delusion possessed him perpetually that he should, in some mysterious way, contract the dreaded disease.

Now all this individual's fears were wholly without reason, as every one acquainted with these things knows ; but such was his actual state. How come to pass such strange things ? Show us the persons who avoid all drugs, whether in medicine, food, or drink, live plainly, temperately, and an entirely moral and consistent life. Do we find among such these strange aberrations of the intellect ? Not at all. The whole world understands that the cold-water drinker—the man "temperate in all things"—is the most clear-headed, contented, and enduring man that can be found.

Another case I will mention. One young gentleman, a student at college, following the example of his preceptors and classmates, ate and drank freely of the fine things ; taking strong tea at night that he might sit up to study, and coffee in the morning to prop up the strength, and dosing a little now and then for the stomach's sake. But spite of all these good things, constipation would come on (" Providence sent it"), and the spirits began to flag. At length a fellow-student became so depressed in mind that he attempted to destroy himself by cutting his throat. The young man, our patient, seeing him in this awful condition, with his throat half cut, was so impressed with the scene that he could think of nothing but that he himself was in the greatest danger of doing the same deed. Such was his state of mind when he came to me for relief.

In both of the above cases, as in others of a like kind which we might mention, all of these strange symptoms of mental derangement

were in a few weeks driven to the winds by a short course of the water-treatment, with proper regimen.

*Treatment.*—Hypochondriasis seems always to be the result of a disordered state of the general health. As to the proper means of cure, some valuable hints may be gathered from the following case. It was one of the author's patients, and the account is given in his own words. He says:

"With a constitution never strong, and great delicacy and sensitiveness of the nervous system and digestive organs, I, in my boyhood, unhappily sought mental occupation and pleasures to the exclusion of those invigorating employments and games appropriate to the proper development of the physical system.

"I also unfortunately imbibed a notion that bathing did not agree with me, having once or twice experienced faintness and other unpleasant symptoms after going into the water with other boys, doubtless at improper times, or from some other imprudence. As might be expected, my tastes and duties combining to keep me seated and constantly exerting my mind, my health and spirits failed more and more. I was almost constantly afflicted with the following symptoms: general chilliness; cold feet and legs; excess of bile; my skin having a dead, copper color; slight chronic catarrh; general irritation throughout the system, but especially in the stomach; confused and aching head; flushings of the face; dry and husky skin; distressing sensitiveness to heat and cold, especially the latter; great depression of spirits, particularly in the morning; sluggish circulation, pulse often as low as fifty; about noon a dreadful sinking of strength and spirits, when food would irritate the stomach like poison, and I was often compelled to eat arrow-root only; digestion painful and irritating; bowels torpid, etc., etc. Friends have since told me that they then considered me in a decided and hopeless decline.

"Of course I was unfit for duty or pleasure, and soon, notwithstanding the kind and earnest efforts of physicians and friends, the sense of my physical sufferings, though not small, became lost in the more subtle and indescribable misery of a shattered nervous system, whetted to a morbid acuteness of sensation, and fixing its fiend-like grasp on every prospect that can make life tolerable, and at last throwing its black pall over even the hopes of religion itself. In those days of darkness, I do not know that I should have been safe from suicide, but from religious considerations, so unspeakably distressing were my sufferings. Any persons who are ignorant of such cases, and disposed to be skeptical, may see them ably illustrated in a little work, entitled, 'Effects of Physical Causes on Religious Experience,' which

every physician and pastor should read. My reading of the Scriptures was now confined to the pitiful mournings of Job, and the grievous complaints of David in Psalms vi., xxxviii., lxix., and lxxxviii. I shunned all society, and would turn off to avoid the exertion of speaking with my esteemed friends. Even now I shrink from recapitulating the sufferings, mental and physical, which characterized those years of misery.

"Blessed with a circle of kind and sympathizing relatives and friends, no means were left untried for my recovery. I ceased from mental effort, and adopted more active habits. I traveled; I visited Saratoga; I dictated. All these yielded temporary palliation. I consulted the most skillful physicians in our cities, and followed most of their prescriptions for a time, among which were vegetable bitters; various tonics (all of which, generally, only made my head ache worse); nitrate of silver; hyosciamus; assafœdita; preparations of iron; quinine; soda; ipecac (one prescribed a course of emetics three times a week); ale; brandy-and-water; congress water; warm-bath; friction with flesh-brush; bath of nitric and muriatic acid, diluted; blue pill; prussic acid; Beckwith's pills; Sands' sarsaparilla, etc.

"I also tried Halsted's remedy of kneading the bowels; underwent the torture of an issue on my chest; tried some of the Thompsonian medicines; was under a celebrated homœopathic physician in New York for some time; tried galvanic shocks, and even animal magnetism; but, alas! weak as I was, I had too much nerve to be 'impressible;' and a magnetizer, who said he had seldom failed before, could produce no effect upon me.\*

"Several of my physicians made some judicious prescriptions of general regimen; advised traveling; spending my winters at the South, etc.; and I noticed that the *most experienced* prescribed the *least medicine*, admitting the deplorable uncertainty of its effect. 'There are four prescriptions,' said one; 'I can not tell which will suit your case; after a week or two, if one fails, try another.' They all failed. Said another: 'This mixture *sometimes* acts like a charm;' on me it acted like a poison. He saw it, and promptly gave it up. Said the venerable head of a medical school: 'The powers of medicine can not control these diseases; I advise you not to look for relief from that source; an entire change of your mode of life; cessation from all mental exertion; a long sea voyage; a year in Europe; liv-

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\* "I never lost my consciousness of sensation and of self-control, except once under the influence of the mighty *Letheon*, which I recently inhaled for a very painful operation on the teeth; that most wonderfully effected the entire suspension of all physical sensation, leaving my mind and senses otherwise perfectly clear.



ing in the open air; these *may* do what medicine can not.' My readers may possibly imagine how all this sounded to a weak, nervous hypochondriac—advice much more easily given than followed. I still remember with gratitude their kind though vain efforts to encourage and assist me, and honor their integrity in acknowledging the imperfection of their medical system.

"About this time, a physician in New York, whose independence and candor equaled his professional skill, prescribed a morning shower-bath daily, which checked the progress of my disease; and he, following the hint, and finding other means all fail, after some months, recommended the full hydropathic treatment, a course of which I took under Dr. Shew, of Bond Street, New York, commencing the last of March, 1846. I began with several shower-baths daily, and the wet bandage around the stomach and bowels, using vegetable diet—coarse farinaceous food, with, for a part of the time, a little meat at dinner, and a part of the time no meat nor butter, and never any drink but water, of which I took several glasses on rising, and an hour before meals. At first I thought this very poor fare, but in a few days my appetite became strong, and I never enjoyed the most luxurious table as I did the coarse brown bread, hominy, crushed wheat, fruits, etc. I have never been, nor am I now, a Grahamite, but I will state the fact, that after a little flatulence for two or three weeks, I improved on the plain fare, and so did my fellow-patients. From one hundred and eight pounds, to which I was previously reduced, I in a few months weighed one hundred and twenty-two pounds.

"I soon threw off my flannels (this was in April), and am now entering on the second winter without them, and yet I have felt the cold less than I did before when cased in all my under-clothes and overcoats, which I now seldom wear, except when compelled to forego exercise. The cold-baths invigorated me, and cured my chilliness and catarrh; the wet-sheet soothed my irritated nervous system; the wet bandage relieved my stomach and bowels; the sitting-bath drew the excess of blood from my head, and the entire course produced the most striking results; my health and spirits improving upon the whole, though with temporary drawbacks, crises, etc., after the first day; until after six months of bathing, under Dr. Shew's direction, partly at home, and without ceasing more than several hours a day from my business, I had attained a degree of health, hardihood, and cheerfulness which I had never anticipated. The crises in my case were, after several weeks, swelling about my ear, and boils in various parts of the person. Now I feel that I possess a capital of health, and the wealth of worlds would not induce me to part with it, and go down

again into the Egypt from which the Water-Cure, by the blessing of Providence, has rescued me. Scarcely a day has passed for months that my heart has not overflowed with gratitude for the happy change, and this letter is one of the fruits of it.

#### DELIRIUM TREMENS.

As an effect of long-continued intemperance, this peculiar state of delirium and agitation is brought on. Opium and tobacco, as well as alcohol, may induce it. The fit is preceded by general indisposition, watchfulness, lassitude, headache, loss of appetite, and inability to sleep. Ceasing the causes suddenly sometimes brings on delirium tremens, but in no such case has harm been known to result.

Usually, as a fit of delirium tremens approaches, the patient suffers indescribable anxiety and agitation. His imagination and feelings are all ajar; his nerves shake, and he can not get sleep. The mind becomes more and more disordered. At length he can get no rest, and he sees continually "the most grotesque, frightful, or disgusting objects: little hobgoblins of all possible shapes flying about the apartment, leering, hissing, threatening; serpents, toads, rats, mice, and other loathsome reptiles and vermin crawling over his bed or person, or running about his room; creeping insects, which he appears busied in searching for among his clothes or the bed-covering." It has been well remarked that there is no end to the number or diversity of these hallucinations.

*Treatment.*—Here, too, we have an example of the superiority of water over all other curative agents known. In a bad case of delirium tremens, in which two noted physicians of this city had given the patient up to die, I succeeded in curing him so that in four days he walked out and rode for miles in the open air. This case is thus given in "Water-Cure in America," page 244:

"In the spring of 1846, I treated the following desperate case of delirium tremens. The subject was an elderly gentleman, a physician, who had been in the English naval or military service some years ago; he had been for a long time intemperate; had no wife, children, or other near relatives, to care for and attend him.\*

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\* The whole tendency of hydropathy is eminently favorable to the temperance cause. Father Mathew says, "I find it a most powerful auxiliary in persuading men to take the Total Abstinence Pledge." It is also an invaluable means, not only of speedily relieving fits of intoxication, but of forestalling the recurrence of that fatal and ungovernable thirst for liquor, which the poor victim of intemperance so often vainly resolves and strives to resist. The comparative ease with which habitual stimulants are abandoned, under the water-cure, is proverbial, the water itself, skillfully applied, supplying an excitement in its place.

"In hopes of doing him good, Dr. Eleazer Parmly had taken him, miserable as he was, under his roof, and for months exercised a fatherly care over him. Occasionally he would break away from all restraint, and return to his cups. He had experienced attacks of delirium tremens, at different times, for years past. The present attack was a very severe one. Dr. Ludlow and Dr. J. W. Francis, of this city, had treated him for (I think) upward of a week. During this time he had not slept or taken nourishment. They had administered powerful emetics and opiates. That the treatment was thorough enough, according to the *regular* modes, no one acquainted with these gentlemen will doubt. So, after having done all they could, they gave him up. One of these physicians being sent for on the night before I saw him, replied, 'Nothing more can be done, die he must.'

"I was told, when I was sent for, that the patient had been in spasms the previous night, which had now returned, and it was feared that he would die before I could get to him; but, on reaching him, I found his pulse too strong for that, and, if undisturbed by medicines, I thought he would not die for many hours, at least. The patient, as is usual in this disease, was perpetually haunted with ideas of the most frightful kind: the whole world was against him—soldiers, officers, magistrates, in short, every body; even the very demons of 'the pit that is bottomless' he imagined were surrounding him, to torment him to death. What, then, are the indications of treatment in so formidable a case? Unlike, perhaps, the majority of cases of this disease, here was a full, hard pulse, attended with considerable pyrexia (general feverishness). This, then, is first to be reduced. The nervous system, so irritated, over-excited, and unstrung, must in some way be soothed, quieted, and restored, in order that refreshing sleep may again be enjoyed.

"First, then, iced water was given plentifully, and ice to eat; secondly, and at the same time, wet towels, with pieces of ice between them, were applied to the head, chest, abdomen, and thighs; those upon his trunk the old man gathered about him as his best friends. They were frequently renewed, so as to assuage the feverishness, at the same time carefully watching the pulse, that he should not be too much reduced. The treatment was commenced about the middle of the day, and, for the first twenty-four hours, the applications were sufficiently extensive to be nearly equivalent to an ice-cold wet sheet: meantime, copious cold injections were given, with a most salutary effect. The system became much calmed, still he could not sleep. He ate, during this time, an enormous quantity of ice, taking it almost continually. The subsequent treatment was similar in kind, but moderated in de-

gree. At least forty-eight hours elapsed before he took nourishment or obtained sleep. Half-baths were also used the second and third days, for an hour at a time. The patient improved rapidly under this course, and, on the fourth day, had grown so much better, as to be able to ride a number of miles, and to walk over one mile, and thus continued to improve.

"The treatment, after my first seeing the patient, was purely hydropathic, although the above-named physicians, who met with me strongly recommended a combination of the old with the new system. Once only, a cup of weak tea was allowed at evening, which, doubtless, served to make him more wakeful."

The great thing in treating delirium tremens is to cool sufficiently the whole mass of the circulation; to do this, we can hardly go amiss in the use of cold water, applying both externally and internally, in the most profuse manner, although we should not apply the douche or allow water from a height. The case just mentioned will serve as a good index to the treatment. Water will make the patient sleep when nothing else will. Opium may bring on a stupor; but there is danger of the patient dying from its effects. It was formerly supposed necessary to give a great deal of opium, spirits, etc., but medical men are beginning to learn the evils of such practice. A patient gets along better without any of this poisoning, and a spontaneous cure is far more permanent than that by drugs.

Delirium tremens is a disease: it is now admitted, that will generally cure itself if nature is left undisturbed. Some of the Boston authors tell us that formerly, when it was customary to thrust drunkards into prison in that city, and give them no medical aid whatever, if they fell into delirium tremens, the results were yet highly satisfactory; they were, in short, cured by nature alone, and few if any have ever died under such circumstances, just as in the teetotal movement no inebriate has ever been killed by leaving off his drink, however suddenly. These are important facts, which show how erroneous the notions of medical men and others have been heretofore on this subject.\*

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\* I have taken pains to note down the various remedies recommended for delirium tremens by a very recent author, Dr. Wood, of Philadelphia, whose candor and strict honesty can never be questioned by any who know him. These are, alcoholic drinks, malt liquors, opium, sulphate of morphia, the liquid preparations of opium, tincture of hops, assafoetida, compound spirits of sulphuric ether, infusion and oil of valerian, calomel, magnesia, castor oil, rhubarb, aloes, senna, lime-water and milk, the effervescing draught, small draughts of carbonic acid water, aromatic spirit of ammonia, carbonate of ammonia, a mustard draught or blister to the epigastrium, a blister over the whole scalp, brandy toddy, milk punch, egg with brandy, ether, chloroform, ether and chloroform combined, egg with ginger

## INTOXICATION—DRUNKEN FIT.

Alcoholic liquors have been the cause of immense evil to man. Here are some of the diseases ascribed by medical men to the use of spirits: cancer of the stomach, tuberculated liver, indurated mesenteric glands, indurated pancreas, inflammation and ulceration of the kidneys, incontinence of urine and catarrh of the bladder, pulmonary apoplexy, aneurism of the heart and large blood-vessels, mania, epilepsy, mortification of the toes, etc., gangrene of wounds, spontaneous combustion.

When a person has a drunken fit upon him, he has a fever, attended with stupor, more or less profound. In consequence of the poisonous effects of alcohol, the blood crowds itself upon the brain in such a degree that coma is the result.

*Treatment.*—In no respect is the curative power of water more striking than in its effects upon a drunken person. The great thing is to pour plenty of cold water upon the head, till the patient "comes to." The dripping wet-sheet, shallow-bath, and all other means of cooling are also useful. If we can vomit the patient plentifully with tepid or warm water, so much the better. Cold injections, in the fit especially, are very useful. Treated in this way, much of the headache, nausea, feverishness, etc., that follow a debauch, are thrown off.

Sailors understand well the proper method of bringing a drunken man to his senses. If one of their number becomes intoxicated, they tie a rope about him, and throw him overboard into the sea. The

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and hot water, and wine and brandy if thought requisite, blood-letting, general and local, capsicum, musk, tartar emetic, etc.

Assuredly this is an array of "remedies" which a teacher and believer in the *materia medica*, one who honestly and even enthusiastically believes in what he recommends, might be expected to put forth. Of course Dr. Wood would not use all of these remedies in every case of delirium tremens; but the fact that such a list has ever been invented for this or any other disease, will, in time, be looked upon as an evidence of the barbarous errors in which the race have groveled.

It is but justice to remark that Dr. Wood, although he believes that the alcoholic stimulus is one of the best of all means for removing the delirious symptoms in these cases, yet objects to their use on moral grounds. "It seems," he remarks, "as though nature had kindly provided this affection as a means of checking the drunkard in his downward career, and offering him an opportunity of retaining his lost position. In the great majority of instances, if left to itself, the affection subsides, and the patient, though feeble, is in a condition of sanity, capable of reflecting on the past and of securing himself, by the exertion of a very possible self-control, for the future. Is the physician to step in, and obviate this kind provision of nature by reapplying the original poison, and thus placing the patient in a situation certainly not more favorable, it might, I think with propriety, be said even more unfavorable, than before the occurrence of this delirium? It appears to me that, by stimulating with alcohol, we incur the risk of confirming the patient in his evil habit, and of hastening the last fatal result, which must come in one shape or another, if this habit be persisted in."

shock quickly arouses his senses, and the submersion serves to remove the fever.

Dr. Currie gives us the following curious and instructive case illustrative of the effects of water in inebriation. It was given on the authority of Dr. Robertson, a surgeon-general of the naval hospital in Barbadoes, and can be relied on as being true. On returning a second time to Barbadoes, Dr. Robertson, according to the request of Dr. Currie, investigated the particulars of the case, which were given in his own words:

"A gentleman of this island, whose name was Weeks, a great votary of Bacchus, was in the practice, from fifteen to twenty years, of plunging into cold water when he rose from his bottle, and actually going to sleep in a trough of water, with his head supported on a kind of wooden pillow made for the purpose, above the surface. When he dined abroad, and had not the convenience of his own trough, he used to strip off his coat, waistcoat, and shirt, and sit exposed in the open air, and in that situation go to sleep, whether it rained or not. And sometimes he went and bathed in the nearest adjoining pond, to which he generally required assistance to be conveyed. The effect of this practice was, that instead of experiencing debility, lassitude, headache, and nausea, he found himself, on awaking, cheerful and refreshed, and free from all the effects of intoxication. In the year 1789 dining one day abroad, he got alternately drunk and sober three several times before midnight, each time recovering his sobriety by immersing himself, and sleeping in cold water; and on awaking returning to the company. The last time, after supper, he was so immoderately intoxicated, that he insisted on his companions undressing him and carrying him themselves to the pond. They carried him accordingly in the chair, and set him up to the chin in water, where he continued upward of an hour, a person supporting him. I had this last circumstance from a gentleman, one of the party, whose veracity may be entirely depended on.

"At home, however, he used, as I have already mentioned, a trough made for the purpose, with a bench in it as a pillow, having been nearly drowned when sleeping in his pond, from the negro, who was appointed to watch him, having himself fallen asleep. In this watery bed he would sleep, one, two, three, or even more hours, experiencing always the greatest refreshment. His wife and family, when they wished him to change his quarters, used to draw out the plug, and let the water run off, when he awoke, and humorously complained of the loss of his bed-clothes. At length this expedient began to lose its effect in rousing him, and one time he continued to sleep in his empty trough.

In consequence of this he was seized with extreme rigors and chills, followed by a fever and attack of rheumatism, which affected him a long time, and made him desist from the practice in future. But to the end of his life he was in the habit of sitting, when intoxicated, with his clothes open, and sometimes quite naked, exposed to the wind and rain. This extraordinary character died of apoplexy, aged sixty-three.\*

"No better and safer remedy, looking not only to present effect but to the formation of a future habit, can be offered to the drunkard, still struggling against his infirmity," observes Dr. Bell, "than the hot-water beverage, to the extent of half a pint or a pint in the evening, and at intervals also during the day, if there be much nervousness and restlessness. The immediate effects are a feeling of fullness in the head, and some vascular excitement, simulating in these respects the first stage of the symptoms following the use of vinous and distilled liquor; but with this material difference, that whereas the water-drinker awakes in the morning refreshed, and with appetite for his morning meal, the imbiber of strong drinks will be apt at this time to complain of a foul stomach and disinclination to eat. Another good effect of the evening draught is to preserve an open state of the bowels."

It is a question whether warm water—that is, not to exceed 98°—would not produce as good or even better effects. The effects of producing "a feeling of fullness in the head, and some vascular excitement," are neither necessary nor useful in my humble opinion. If the draught is taken at say 98°, no such result would follow. But water at a somewhat higher temperature than this would be preferable to hot sling, tea, etc.

#### FAINTING FIT—SYNCOPE.

Fainting may arise from various causes, such as severe shocks, mechanical injuries, wounds, loss of blood, poisons, foul air, mental emotion, and the like. When unaccompanied with structural disease of the heart or large blood-vessels, it occurs as follows:

From inanition, produced by prolonged fasting, excessive fatigue, or from a sudden discharge of any large quantity of fluid, whether natural or morbid, from the body, and which is accompanied with a sense of extreme weakness; from acute pain, caused by wounds or other

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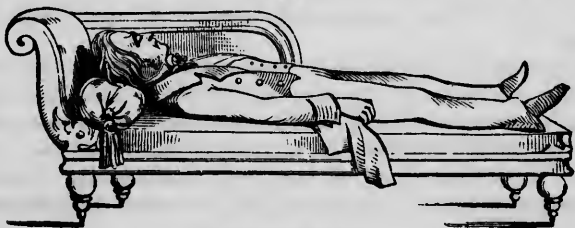
\* As an inference from this subject, I wish to inquire, if alcohol is a poison to the lining tissues, and capable of exciting febrile action, congestion of the brain, and coma, even when taken in a small quantity, on what principle can it be made useful in the treatment of disease? I for one can not see it.

injuries, whether external or otherwise; from worms, flatulency, or hysteria; from powerful medicines, poisons, etc.; from some sudden or overwhelming passion or mental emotion, and from a sudden retrocession of scarlatina, small-pox, measles, gout, or other disease.

*Treatment.*—Some patients after fainting revive almost immediately, and apparently without experiencing any harm whatever. Others, again, recover very slowly, so that it may be hours, days, weeks, or months, before the full strength returns. Much, of course, will depend upon the nature of the case. In the treatment we must do all in our power to remove the cause of the difficulty. If it arise from a poison, we must endeavor to remove it from the system, and to counteract its effects. If a flow of blood be the cause, that must be attended to in the proper way.

In general, people are much more afraid of syncope than there is any occasion for. Soon as a fit comes on, they set about dosing the patient with camphor, and a hundred other things more or less injurious, according to their strength, whereas, in nine cases out of ten, they should only place the patient in a comfortable posture—the recumbent (fig. 31)

Fig. 31.



POSTURE IN SYNCOPE.

being generally considered on the whole the best—sprinkle a little cold water in the face, give a little to drink, and wait patiently for nature to take care of herself.

If fainting arise from the too tight adjustment of corset strings, etc., as it has in days of old been known to do, the natural remedy suggests itself. So, too, if confined air, as in a large assembly, be the occasion, it is plain enough what ought to be done; and I may here remark, that it would be well for people to be more cautious than they are wont, in regard to going into large assemblies, where the air is often necessarily impure, and wholly unfit for the purposes of respiration. It must, I think, be a performance of more than ordinary merit—whether scientific, amusing, or religious—that will at all compensate one for the physical injury he receives in attending a great public



gathering in the places ordinarily used for such purposes. A better state of things, however, begins to appear; people are beginning to learn that there is a difference between good and bad air, although we do not see it with our eyes.

#### SLEEP DISTURBANCE.

Under this head Dr. Good classes *somnambulism*, or *sleep-walking*, *sleep-talking*, and *night-pollution*.

In a state of sound and healthful sleep, all the faculties of the mind, as well as the voluntary organs of the body, are in a state of inactivity and rest. But in dreaming, the case is different; while some of the mental faculties, such as the will, perception, and judgment remain inactive, others, as the memory and imagination, become more or less wakeful.

#### SOMNAMBULISM.

In the somnambulic state the muscles of locomotion are excited into their accustomed action by the force of imagination during dreaming. In such a condition, some of the cerebral organs are excited to action—often more acute even than that of the ordinary wakeful state, while others remain torpid, as in a deep sleep. Thus, the patient may see distinctly, while at the same time the auditory sense can be aroused only with difficulty. He may be insensible to touch, and even to severe shaking of his body, and may even cough violently without being recalled from the dream. In such a state he may pass over dangerous hedges and precipices, where he would not dare to venture in the waking condition.

In a majority of cases, probably, this affection is connected with a morbid state of the stomach and bowels, although I have no doubt that excessive fatigue of either body or mind is capable of bringing it on. Dr. Yeats has given a case of a lad ten years of age, who was often troubled with sickness; sometimes ejected his food undigested after having lain two days in his stomach; his bowels were costive, and the stools dark, offensive, and ill-formed. The sympathetic symptoms were frequent headaches, with occasional stupor, general coldness of the skin, and limpid urine. After being in bed for about two hours, he was wont to start up suddenly, as if in a fright, dart rapidly into the middle of the chamber, or of the room adjoining, and walk about with much agitation. In this state he would run over quickly, but incorrectly, the transactions of the day; and he once attempted to spell a word which in the daytime he had spelled wrong, in doing which he jumbled a number of letters together. When spoken to, he

would make a rational reply; and in one of his sleeping perambulations he called for an Epitome of the History of England, which he was in the habit of reading. The nurse brought him a book, but not the one he called for; on perceiving the difference, he immediately threw it from him with great violence and with expressions of anger and disappointment. On these occasions his eyes were wide open, though he did not seem conscious of seeing, nor of his situation at the time. It was, says Dr. Yeats, a perfect state of dream throughout, though partaking of the acts of the waking state, for he would avoid objects about the room. His face was quite pallid at the time.

I can well remember myself, when a lad, of frequently getting up in my sleep, and running down one and two flights of stairs, more nimbly, I was told, than I could do in the dark if I had been in the waking state. I often talked in my sleep, and, as nearly as I can remember, whenever I was awakened out of the sleep-walking and sleep-talking state, I felt as if I had been in great trouble. I always had a weakness in my bowels, and I have no doubt this had influence in causing these nightly troubles. Sometimes, probably, I was too much fatigued, and had eaten too late and heartily; and sleeping on feather beds and in close rooms, as the custom then was, exerted also a pernicious effect. Always when I have not been extremely careful of health in all respects, I have been a great dreamer, the dreams often being of a troubled kind.

Mesmeric subjects often become somnambule, exhibiting certainly very strange and unaccountable manifestations in some cases. It is generally the nervous and easily excitable subjects who are most easily affected in this way. I do not assert that this kind of artificial somnambulism ought never to be resorted to in surgical or medical practice; but to be operated upon frequently in this way, I should consider as decidedly injurious to the nervous system.

#### SLEEP-TALKING.

In this state, which is also a very common one, the muscles of speech are excited into their accustomed action by the force of the imagination during dreaming, in the same manner that the muscles of locomotion are excited in the somnambule state.

Examples of sleep-talking have been given in which a bystander, obtaining some clew into the train of thoughts of which the dream is composed, has been able, not only to keep up an irregular conversation, but by dexterous management, and the artful assumption of a character which he finds introduced into the dream, to draw from the dreamer the profoundest secrets of his bosom, the dreaming ideas generally

consisting of those on which the dreamer is most employed when awake, or which lie nearest his heart. For various reasons, therefore, it is a matter of importance to avoid talking in one's sleep.

This affection, like the last, is often, if not generally, caused by a disordered state of the digestive viscera. Mental troubles, undue excitement, foul air, and hot beds also come in for a share in sleep-talking. Seldom can one be troubled in this way if his habits are in all respects correct. Dreaming can never be a strictly healthful state.

*Treatment of sleep-walking and sleep-talking.*—A knowledge of the causes of these disorders leads us directly to the methods of cure. First of all the stomach disturbance should be removed. At the same time all undue mental excitement should be avoided. It is necessary for the patient to maintain a contented frame of mind. In many cases, if the patient will persist in taking but two meals a day, that is, omitting the supper altogether, the cure will soon be effected.

The vegetarian diet is admirably suited to cases of this kind.

#### NIGHT-POLLUTION—SEMINAL EMISSIONS.

In what is termed *night-pollution*, or *seminal emission*, in the male, "the sexual organs are excited into venereal action by the force of the imagination during dreaming," in the same way that sleep-walking and sleep-talking are induced.

In some morbid states of the system, when the nervous power has been in a great degree exhausted, and the muscular fibers greatly relaxed, either by old age, venereal abuses, or excessive medication, a kind of seminal flux takes place, without dreaming or salacious excitement of any kind. These cases are, however, rare, and we are to consider in this place the class of cases in which the pollution is connected with dreams.

This evil, although it is a serious one in many cases, is greatly exaggerated by some. The country is flooded with vile books, spawned by villainous quacks, who set forth the effects of night-pollution in the most extravagant manner, with the view of frightening the unwary, that they may cheat them out of a large fee. Not long since a single gentleman called to consult me in this city for a weakness in his private member, and who told me that a certain Broadway doctor had induced him to pay several hundred dollars, for which he promised a perfect cure. Now this old fellow—for he was already quite along in years—could never be cured by drug-treatment, cauterizations, etc., at all, and it would take long enough even by water, for he was well-nigh bankrupt in his private parts. Besides, too, in such cases, patients are generally so lecherous, and so given to *womanizing*, that if we

get them partly cured, they set at once to work again in their old habits, making themselves as bad as ever in a very short time. A whore-monger is a hard customer to deal with necessarily; and I think doctors would have but little to do with such thankless cases if it were not for the good round fee. A doctor who understands his business does not look at a man's private part, sniveled and used up as it is in these cases generally, without being well paid for it, and that too on the spot. These "old stagers" are not to be trusted, many of them, be it remembered; pay down, or never pay, is the rule.

In regard to the curing of these diseases of which I have been speaking, the story is a short one. In the first place, the patient must become strictly continent in his thoughts, both by night and by day, or he can not accomplish much. If he will resolutely do this, and at the same time adopt all rational measures that are calculated to restore the lost energies of his system, and maintain a good and vigorous state of the general health, he can be cured in most cases. In addition to the other means, he should sleep upon a hard bed, in air as fresh and pure as possible, and he should have as little covering as he can do with; for it is better, even, to suffer somewhat with cold and the consequent sleeplessness, than to become overheated and excited in the way described.

#### INCUBUS—NIGHTMARE.

The term *incubus* is from the Latin *incubo*, which means *to lie upon*. The term *mare*, as used in the compound *nightmare*, signifies "a hag, goblin, demon, or specter, as though the oppressive night were occasioned by some such hideous monster abruptly leaping or lying on the chest."

This affection, usually, though not always, occurs in the night. There is a similar but very rare disorder of the nervous system, known by the name of *daymare*. But the nightmare is by far the most common. It generally happens in the early part of the night, when the stomach is more apt to be overloaded with crude and undigested food. It is most common among those who are melancholic, or disposed to become low-spirited; although it may happen to any one if he becomes exhausted and over-fatigued, either bodily or mentally, and particularly if a hearty supper is indulged in under such circumstances. If men, when thus exhausted and fatigued, could always omit supper or the evening meal entirely, they would seldom, indeed, be troubled in this way.

The treatment for this affection should be similar to that which we would adopt in night-pollution, sleep-walking, sleep-talking, etc., and

which need not here be commented upon. It is of great importance that the patient lie upon his side. Nervous people are often fond of lying upon the back; and it is in this position that the nightmare attacks.

### SLEEPLESSNESS.

Natural sleep, as elsewhere remarked, "is a torpitude of the animal frame, produced by a general exhaustion of sensorial power, in consequence of an exposure to the common stimulants or exertions of the day." Hence, if such exhaustion do not take place, natural sleep can not possibly ensue.

In consequence of various exciting causes, it often happens that the sensorial power of one or more parts of the brain is rendered preternaturally active, so that no exhaustion occurs at the proper time, and hence a state of wakefulness is induced. If the mind is energetically bent upon a particular subject of study or interest, or if severe grief or overwhelming joy is experienced, sleep may be kept off, or at best be only of a disturbed character for a longer or shorter time. A severe headache may have the same effect; and it is surprising to what an extent the vital powers sometimes bear up under such circumstances. We are told, indeed, of persons remaining sleepless for weeks and even months without sinking. A severe headache has kept a person awake for three months, and a melancholy or gloom on the spirits for fourteen months. Dr. Gooch gives a singular case of a man who never slept, and yet enjoyed a very good state of health till his death, which happened in the seventy-third year of his age. He had a kind of dozing for about a quarter of an hour once a day, but even that was not sound, though it was all the slumber he was ever known to take.

Some of the worst cases of sleeplessness I have ever known have been caused by long-continued courses of mercury and iodine, for the cure of some chronic disease. In such cases the remedy, sometimes at least, has proved far worse than the disease. It is in cases of a syphilitic character especially, where a chronic wakefulness is apt to be induced.

Every one knows that the excessive use of tea is very apt to bring on this affection. Coffee comes somewhat under the same condemnation, and tobacco is a frequent cause of the difficulty.

As a critical symptom, water-treatment has in some instances induced a state of extreme wakefulness, which, however, has not lasted for a long time, unless in case the course has been pursued in too vigorous a manner. It is a curious fact that in such cases the patient does not seem to suffer inconvenience through the loss of sleep.

The wakefulness experienced by old people generally can not properly be called a morbid state. As vitality becomes more and more expended, less sleep is required. The young and growing always need much more sleep than those who have passed the meridian of life.

*Treatment.*—All that has been said in these pages in reference to the cure and prevention of sleep-disturbance, should be borne in mind, by those who would become cured of sleeplessness. The practice of being busy at something useful habitually during the day, is an excellent means of securing good and refreshing sleep at night. Above all, the sleepless patient should resolutely avoid napping during the day. It is also highly important that he should not get the hypochondriacal notion into his head, which so many have, that going without sleep is a dangerous symptom. Some have worried themselves well-nigh to death in this way. They should understand that worrying can never help them under such circumstances; and that if they will only observe the natural laws of health in any reasonable degree, nature will, with the utmost certainty in the end, and soon enough, bring them the desired sleep.

## CHAPTER V.

### OF THE DIGESTIVE ORGANS.

THE human body, like all other things, animate and inanimate, is subject to constant change. Hence the necessity of the DIGESTIVE PROCESS, by which the natural waste of the body may be constantly repaired, and the DIGESTIVE ORGANS, by which digestion is carried on. These organs in man are the *mouth, teeth, salivary glands, pharynx, esophagus, stomach, intestines, liver, pancreas, the lacteals, and thoracic duct.*

THE ALIMENTARY CANAL, which includes the digestive organs collectively, is a musculo-membranous tube, extending from the mouth to the anus, of about forty feet in length, and presenting an internal surface of mucous membrane of from thirteen to fourteen square feet.

THE MOUTH is the irregular cavity which contains the organs of taste and the principal instruments of mastication.

THE SALIVARY GLANDS are three in number, on each side: the *parotid, submaxillary, and sublingual*, their openings being under and at the sides of the tongue.

THE PHARYNX, or THROAT, is that portion of the oral cavity bounded by the mouth and the esophagus. It opens downward into the *larynx* and the *esophagus*; upward into the *posterior nares* and the *eustachian tubes*; and outward into the mouth.

THE ESOPHAGUS is a membranous, slightly elastic tube, that passes from the pharynx, back of the trachea, heart, and lungs, through the diaphragm into the stomach. Its office is to convey the food to this part.

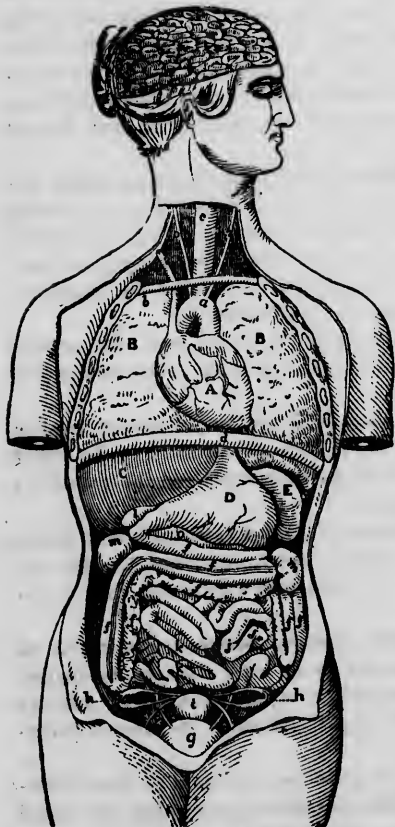
THE STOMACH is a musculo-membranous reservoir, continuous on the one side with the esophagus, and on the other with the duodenum. It is situate beneath the diaphragm, liver, and spleen, and occupies the epigastrium and a part of the hypochondrium. Its office is to convert the food into chyme.

THE INTESTINES, or BOWELS, comprise the *duodenum, or second stomach, the jejunum, and ileum*, which collectively are called the small intestine; the *cæcum*; the *colon*, and the *rectum*. The *duodenum, or*

second stomach, leads from the pyloric orifice of the stomach to the jejunum. Its length is about twelve fingers' breadth, and hence its name. The *jejunum*, so called from being generally found empty, forms the upper two fifths of the small intestine, leading from the duodenum to the ileum. The *ileum*, which signifies to *twist* or *convolute*, forms the remaining three fifths of the small intestine, ending in the colon. It is smaller, paler, and thinner than the jejunum.

The *large intestine*, about five feet in length, is divided into the *cæcum*, *colon*, and *rectum*. The first is a sort of pouch or sack at the

Fig. 32.



THE VITAL SYSTEM.

commencement of the colon. The *colon* is divided into three parts: the *ascending*, which passes from near the right groin upward through the right lumbar region to the under surface of the liver; the *transverse*, which crosses the upper part of the umbilical region; and the *descending*, which passes down to the region of the left groin, where it curves upon itself, constituting what is called the *sigmoid flexure*. The *rectum* is the termination of the large intestine, and the *anus*, its opening (fig. 32), gives some idea of the relative position of the digestive organs, as well as of the viscera generally.

A. Heart. B, B. Lungs. C. Liver. D. Stomach. E. Spleen. *m, m.* Kidneys. *g.* Bladder. *d* is the diaphragm which forms the partition between the thorax and abdomen. Under the latter is the cardiac orifice of the stomach, and at the right extremity, or pit of the stomach, is the pyloric orifice.

In *structure*, the alimentary canal has, throughout most of its course, three coats: a *mucous membrane*



internally, which in character is analogous to the external covering of the body, and may well be considered as a continuation of the same; a *muscular coat*, and a serous covering for the same. The esophagus has only the two first-mentioned coats.

The LIVER, which is the largest gland in the body, and weighing about four pounds, extends from the right to the left hypochondrium, and is situated obliquely in the abdomen, its convex surface looking *upward and forward*, and its concave *downward and backward*. It is sustained by strong ligaments to the diaphragm and other adjacent parts. Its office is to secrete bile from the blood, which is poured from the gall-bladder into the duodenum, a few inches below the stomach.

The PANCREAS, about four ounces in weight, is a long, flattened gland, and supposed to be analogous to the salivary glands. It is six inches in length, and lies transversely across the posterior wall of the abdomen, and upon the large blood-vessels in that region. It secretes a fluid similar to that of the saliva, and which is poured through a duct into the duodenum, at about the same point where the gall-duct enters it. The fluid is supposed to have some influence in chylification.

The LACTEALS are small ducts that arise from the minute, teat-like excrescences of the smaller intestines, more particularly in their upper part. From thence they pass into the mesenteric glands, and afterward passing through several successive glandular bodies open to the thoracic duct. Their office is to absorb the chyle from the intestines, conveying it to the circulation through this channel.

The THORACIC DUCT commences at the lower portion of the abdomen, in front of the spinal column. It receives many of the lymphatic vessels of different parts of the body, and at the lower part of the neck, on the left side, empties into the subclavian vein.

The alimentary canal is largely supplied with nerves and blood-vessels, and its diseases comprise some of the most severe and dangerous to which the human system is liable.

The PROCESS OF DIGESTION is as follows:

The food is first masticated and insalivated, which, by-the-by, are important steps in the process, and should be well and carefully performed; it is then collected by the action of the tongue into a ball, and conveyed to the back of the throat and fauces, whence it passes into the gullet, and is carried by the wave-like action of that tube into the stomach. The food passes downward, not by its own weight, but is carried onward in the same way, that is, by the muscular movements of the esophagus, as water is upward through the gullet

of the cow or horse in the act of drinking, or even a man, when he drinks with his head downward. After the food has thus entered the stomach, and the meal is finished, the organ takes upon itself a sort of hour-glass contraction, by which the more watery part is forced into the cardiac part and the more solid to the pyloric; the watery portion is then absorbed and carried into the circulation, after which the rolling or churn-like motion of the stomach commences. At the same time the gastric fluid oozes from the internal surface of the stomach like sweat upon the external surface of the body. The food being rolled over and over by the motions of the stomach, before referred to, is constantly mixed with it till the whole appears like a grayish paste, called chyme. The chymous mass is then passed along through the pyloric orifice into the duodenum, or second stomach, where it becomes mixed with the bile and the pancreatic fluid, after which it is conveyed to the small intestines. Here, again, by their vermicular motion, the chymous mass is subjected to a sort of digestion, that is, the food is worked over in such a way that the chyle, or milky or more nutritious part, is squeezed out, as it were, from the mass, and is then absorbed by the lacteals and carried into the thoracic duct, which has been before described. The coarser and more indigestible portions of the aliment are then conveyed into the larger or lower intestine—the colon, at which part the feces are formed. This part of the process will be spoken of more particularly under the head of “Constipation.” Altogether, digestion is one of the most interesting and wonderful of all the vital processes. Under the head of “Diet,” I shall speak more particularly of the rules which should guide us with reference to it.\*

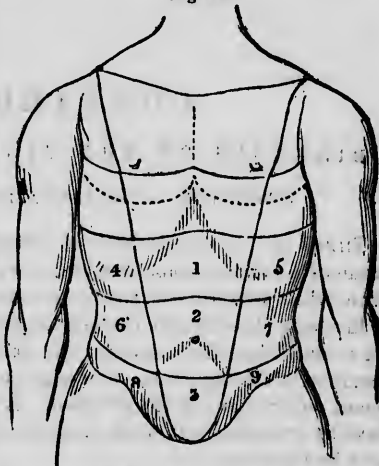
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\* “Intemperate eating,” says the celebrated Dr. Caldwell, “is perhaps the most universal fault we commit. We are all guilty of it, not occasionally, but habitually, and almost uniformly from the cradle to the grave. It is the bane alike of our infancy and youth, our maturity and age. It is infinitely more common than intemperance in drinking; and the aggregate of the mischief it does is infinitely greater. For every reeling drunkard that disgraces our country, it contains one hundred gluttons—persons, I mean, who eat to excess, and suffer by the practice. \* \* \* \* How, indeed, can the case be otherwise, while children and youth are regularly taught, hired, bribed, or tempted to over-eat themselves from their birth? Do you ask me evidence for the proof of this charge? Go to our dining-rooms, nurseries, fruit-shops, confectioneries, and pleasure-gardens; go even to sick rooms, and you will find it in abundance. You will witness there innumerable scenes of gormandizing, not only productive of disease in those concerned in them, but in many instances offensive to beholders. The frightful mess often consists of all sorts of eatable materials that can be collected and crowded together, and its only measure is the endurance of appetite and the capacity of the stomach. Like the ox in rich pasture-ground, or the swine at his swill-trough, men stow away their viands until they have neither desire nor room for more. I do not say that such eating-matches always and everywhere occur among us; but I do say that they occur too frequently, and that they form fit subjects for caricature pictures, by European tourists, of our domestic manners.”

In order the better to understand the methods of treating the diseases of the alimentary organs, the two following cuts are subjoined :

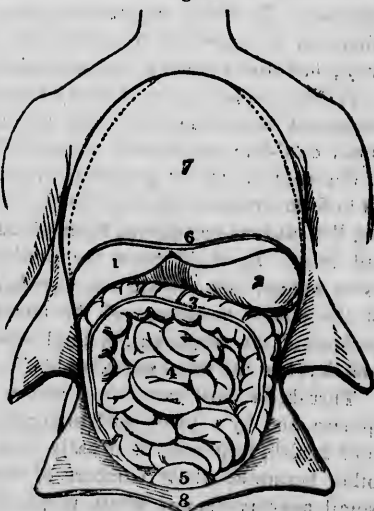
Figs. 83 and 84. The abdomen, or belly, the largest cavity of the body, is bounded above by the chest, fig. 84, 7; and below by the pelvic bones, which are joined in front, fig. 84, 8. These bones, which every one may feel in their own person, likewise inclose a cavity—the cavity of the pelvis—which is sometimes described separately from the cavity of the abdomen; but the two are so completely undivided, that they are better treated of together. The cavity of the abdomen is divided from that of the chest by the midriff or diaphragm, fig. 84, 6; posteriorly, it is supported and protected by the spine; it is inclosed by the short ribs and abdominal muscles. To facilitate description, medically, the abdomen is mapped out into regions by imaginary horizontal and vertical lines drawn as represented, fig. 83. The horizontal lines drawn round the abdomen divide it into three zones, which, by the vertical lines, are divided into nine anterior regions, as follow: 1. Epigastric. 2. Umbilical. 3. Hypogastric. 4 and 5. Right and left Hypochondriac. 6 and 7. Right and left Iliac. 8 and 9. Right and left Inguinal. In the upper zone lies the liver, fig. 84, 1, extending from under the right ribs, across to the left; the stomach, fig. 84, 2, has its small end situated in the epigastric, its large end in the left hypochondriac region, where it is in contact with the spleen, or milt. The pancreas, or sweet-bread, lies behind the stomach. The middle zone contains the large bowel, fig. 84, 3, the omentum, or caul, a portion of the small intestines, fig. 84, 4; and, posteriorly, lying close to the spine, the kidneys. The inferior zone also contains, centrally, a portion of the small intestines, laterally, the extremities of the large intestines, or colon, and when it is distended, the superior portion of the bladder. All these parts, or viscera, are covered and supported by a smooth, glistening, moist membrane;

Fig. 83.



EXTERIOR VIEW OF THE ABDOMEN.

Fig. 84.



INTERIOR VIEW OF THE ABDOMEN.

## CHAPTER VI.

### DISEASES OF THE DIGESTIVE ORGANS

#### STOMATITIS, OR INFLAMMATION OF THE MOUTH.

THERE are several varieties of inflammation of the mucous membrane of the mouth, some of which are of comparatively little importance, while others are of a more serious nature.

In *simple stomatitis* the mucous membrane is unusually red, in patches, or over the whole surface, the part hot and dry, and extremely sensitive to the impression of foreign bodies. Ptyalism is a not infrequent concomitant of the affection. It ordinarily passes off in a few days by resolution, although in some cases mortification, or gangrene, may be its result.

*Thrush*, or *pultaceous inflammation of the mouth*, is a disease chiefly of the new-born infant. Adults also may have it; but such is seldom the case. Thrush is supposed by some to be communicable from the nipple or a cup which has been used by a patient suffering in this way; but others are of a contrary opinion.

The disease is in general easily recognized. Over the whole of the surface of the tongue there is an unusual redness, with here and there small curd-like exudations, especially behind the lips and at the tip of the tongue; "these gradually increase in number, and coalesce so as to form irregular patches, which are thrown off, and renewed, leaving the mucous membrane, from which they are detached, of a vivid red color. In slight cases the exudations are discrete; but in the more severe, they always run together, until occasionally the whole of the mucous membrane of the mouth, as also of the pharynx, and perhaps of the esophagus, is implicated. The skin is commonly hot and dry, and the thirst considerable."

Thrush, in most cases, is a matter of comparatively little consequence, and by a little good management with reference to the general health, it passes off usually in a few days. In foundling, and other hospitals, where numbers of children are crowded together in small apartments, and where proper attention is not paid to ventilation and diet, thrush sometimes becomes of so serious a nature as to

destroy life ; the inflammation passes down the digestive tube, diarrhea sets in, and the patient sinks.

*Pseudo-membranous inflammation of the mouth* is only a severe variety of thrush, the exudation being detached in large flakes, having the appearance of false membrane. All of the symptoms are similar to those of thrush, but more intense in character. In some cases a gangrenous state of the mouth takes place.

This disease is seldom seen, except in large foundling establishments. Its mortality is sometimes frightful. Of one hundred and ninety-three cases observed by M. Valleix, one hundred and fifty-three ended fatally. In such cases a disagreeable sense of heat is experienced by the little sufferer, with pain augmented by the contact of foreign bodies ; the breath is fetid, and the submaxillary glands enlarge and become painful. Later on, the lips and gums are tumid and bloody ; a sanious saliva flows copiously from the open mouth ; the breath becomes more and more fetid ; and the face flushed and swollen. The fever is more or less intense, with headache, restlessness, and want of sleep."

*Apthous, or follicular stomatitis*, is either discrete or confluent, and attacks the parts where the epithelium is most apparent. The discrete form is observed oftenest in children who have passed the first dentition, and adults. It is usually connected with gastric derangement, and passes off in a few days after the stomach becomes regulated. The confluent form is more slow in its progress. It is not common in the United States, but is said to be very often met with in the moist countries, as in Holland, where it reigns epidemically, and and is a serious affection, attacking adults and childbed females especially. It is often very difficult of cure.

In the *sore mouth of nursing women*, it has been thought indispensable, in some instances, to wean the child, the practitioner regarding the process of lactation as being too much of a drain upon the constitution. This may possibly be true of some cases, but certainly not of a majority. As a general fact, the mother should persevere in nursing her own child, while at the same time no available means of improving the tone and vigor of the constitution should be omitted.

*Treatment of the various Inflammations of the Mouth.*—The treatment of all of the forms of stomatitis is to be pursued according to general principles. As for local applications, those of a mild nature, such as flax-seed tea, infusion of slippery-elm bark, white of egg mixed with water, and fluids generally that have a soothing and not a poisonous or irritating property, may be used with benefit. Pure, soft water, however, is more healing in its nature than any other substance

with which we are acquainted, and is certainly more readily obtained.

The great thing in the management of these inflammations is, *the strictest cleanliness and attention to the general health*. All local applications are of little consequence, except for the purposes of cleanliness. Many of the drug appliances that have been used in stomatitis, are worse than useless, even for the time being. A good course of water-treatment by wet-packs, ablutions, the wet-girdle, clysters, pure soft water, and proper air, exercise, and diet—these are the most appropriate and effectual means.

#### CANCERUM ORIS.

*Cancerum oris* is a phagadeno-gangrenous affection of the lips and cheeks, which is seldom seen except among the ill-fed squalid children of large towns. It is emphatically a disease of debility, caused by want of pure air, proper food, and cleanliness. It is very apt to follow hooping-cough, measles, scarlatina, and any other disease which seriously weakens the powers of life.\*

*Symptoms*.—The disease commences often with a shallow ulcer on the lip, or inside of the cheek, having a dirty gray or ash-colored surface, and black edges. In other cases it commences with an exudation of a pale, yellow, fibrinous matter, like that which is exuded in oroup, and some forms of putrid sore throat. The face is swollen, the breath exceedingly fetid, and there is a dribbling of saliva mixed with blood. If not cured, the ulcer becomes gangrenous, and destroys the cheek and gums; the teeth drop out, and the patient sinks in a typhoid state. It is characteristic of this disease that the swelling accompanying it shows nothing like active or healthy inflammation. In the most rapid form of the disease, it commences at once as a black spot of gangrene, which spreads slowly, and is not accompanied by any apparent inflammation whatever, the parts about it appearing pale and wax-like.

*Treatment*. This should be such as is calculated in the best manner to correct the secretions of the stomach and bowels, to promote the strength, and to excite a healthy action in the diseased part. The wet-pack, tepid shallow-bath, and frequent washings of the mouth with cold water are the appropriate means.

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\* In this country, the slighter affections of the mouth are often designated among people at large by the name of **CANKER OF THE MOUTH**. Those who wish for advice in these minor affections are, therefore, referred to what is herein said under the head of **INFLAMMATION OF THE MOUTH**.

## CANCER OF THE LIPS.

This formidable affection commences as a small, hard tumor, or wart, or as a small crack or fissure, caused often by the irritation of smoking, and which passes gradually into a foul, painful ulcer, with hardened base and ragged surface.

*Treatment.*—All that is said in another part of this volume in regard to the general management of cancer is applicable here. If an operation for the removal of this disease is to be done on any part of the body, it would be upon the lip.

## HARE-LIP.

This is one of the most common among the congenital imperfections to which the human system is liable. It may exist only on one side, or there may be a double fissure, with a small flap of skin between. There may also be a fissure in the bony palate, as well as the soft palate also. In some cases, the upper incisors and their alveoli project through the opening in the lip, all of which conditions constitute a deformity, greater or less, and an impediment in speaking and feeding. The affection exists in very different degrees.

*Treatment.*—We have, in the treatment of hare-lip, a beautiful exemplification of the value of the noble art of surgery, when practiced rightly and in its proper place. The operation should be performed either before teething or after. Some advise it at a very early age, and others not till the child is about two and a half years old. It is probably better to wait at least some months, because in doing so nothing is lost as regards success, but gain as respects vigor of the child, or, in other words, ability to endure the operation. There is, however, one serious inconvenience in waiting—the child must, in most cases, be fed with the spoon, if the defect is not remedied. In some cases, however, where the defect is but trifling, the child can suck very well, especially if the nipple is large and the milk flows freely.

Inasmuch as no one but the practical surgeon ever undertakes the operation for hare-lip, it would be out of place to dwell upon the different modes of performing it in a work of this kind.

As regards the safety of the operation, the American surgeons—Dr. Mott, of this city, for example—has in all his great experience scarcely lost a case. The European surgeons lose many

Fig. 35.



HARE-LIP

## DISEASES OF THE TONGUE.

*Tongue-tie.*—When the frenum linguæ—in common language, the string which holds the tongue down to the lower part of the mouth—is too short, or is attached far forward, the child is what is called *tongue-tied*. As long as the difficulty is not remedied, he can neither suck well nor speak as distinctly as he should. The affection, if such it may be called, is a rare one, and not unfrequently when it is supposed to exist there is no real need of an operation, nature in time appearing to do her own work. The best test as to whether an operation is necessary, is to introduce the finger into the child's mouth. If he sucks it readily, we may know that the operation is not at all needed, although very likely the mother believes that it is.

*Treatment.*—The remedy for this defect consists in dividing the frenum linguæ with a pair of sharp scissors—blunt-pointed ones are the best—to a sufficient extent to let the tongue loose. Care must be taken in operating, lest a vein or artery be wounded, in which case a troublesome and possibly fatal hemorrhage might ensue.

*Wounds of the tongue* are liable to be attended by serious hemorrhage from the lingual artery.

*Treatment.*—The bleeding orifice should be tied, if the hemorrhage can not be arrested by the ordinary means. [See *Treatment of Hemorrhages*, in this volume.] In some cases it will be necessary to introduce one or more ligatures with curved needles, so as to include and constrict the bleeding parts. Or, what may be done by any who have courage sufficient, a hot iron may be applied to the bleeding orifice through a metallic tube.

*Inflammation of the tongue* is known by swelling, tenderness, and difficulty of speaking and deglutition.

*Treatment.*—It should be managed on general principles, and the antiphlogistic regimen—in short, the *hunger-cure*—should be persevered in.

*Abscess of the tongue* sometimes follows a severe inflammation of the part.

*Hypertrophy.*—Sometimes the tongue becomes slowly enlarged, without pain, tenderness, or structural disease, causing it to protrude permanently from the mouth.

*Treatment.*—Surgeons in some cases remove a superfluous portion by passing a double ligature through it, tying half each way. Sometimes, also, a portion has been cut out in the shape of a V, and the remaining parts healed.

*Cancer.*—The tongue becomes cancerous in some cases, and often-



or, I have no doubt, from the use of tobacco than from any other cause. It consists of "a foul, excavated ulcer, with extremely hardened base, prominent edges, burning and lancinating pain, and preceded by nodular schirrous enlargement." The constitutional symptoms are the same as of cancer in general, and the treatment is to be conducted on general principles.

*Ulcers of the tongue* sometimes present very formidable characters. They are owing in some cases to diseased teeth; but generally to depraved general health. They are to be managed accordingly.

*Stammering*.—This is more properly a nervous affection of the organs of speech.

*Treatment*.—Two several surgical operations have, within a few years, been devised with the hope of curing this complaint. The first, which is intended to divide the muscles of the part, is performed by drawing it out of the mouth as far as possible, and then making a very deep incision completely across its base. In addition to this a triangular notch is cut from the anterior edge of the transverse incision. "This operation," says Druitt, a celebrated author on surgery, "is necessarily attended with so much hemorrhage and danger to life, that it is utterly unjustifiable for the relief of a mere inconvenience. It may truly be styled muscle-cutting gone mad."

The other operation consists in cutting off the uvula, and removing part or the whole of the tonsils, so as to enlarge the passage from the mouth into the fauces. The operation is not at all dangerous; but it is doubtful whether it is ever successful.

The only proper cure of stammering thus far, is that of drilling stammerers in a class to articulate properly.

### TONSILITIS.

*Tonsilitis, quinsy, or sore throat*, may affect persons of any age; but children are more liable to it, in large cities especially. A large proportion of all children that survive the second or third year are found to suffer more or less from tonsilitis.

In the acute form, this disease, like other inflammations, comes on with chilliness; at the same time there is huskiness of the voice, an uneasy sensation in the fauces, and a sharp, cutting pain of the throat when swallowing. This, in some cases, becomes exceedingly severe, and in some instances the throat becomes so much swollen and inflamed that the patient can not swallow. In the more severe forms of the affection, the palate and other adjacent parts become also very much inflamed; the tongue is covered with a white coating, and upon its root, the tonsils, and other parts, a thick, tenacious slime may be

observed. The face becomes flushed and swollen, the blood-vessels of the neck beat violently, the breathing becomes difficult, the hearing obtuse, the pulse frequent, hard, and full, and the voice indistinct.

The inflammation ends either in resolution (fading away), or in suppuration. Mortification does not often happen, although it may now and then appear in spots. It is believed that in no other structure is abscess more frequently the result of inflammatory action than in the tonsils. This often happens within a very short time, in spite of the most active treatment. The quantity of matter formed in a suppurating tonsil is not considerable. Sometimes the abscess breaks outwardly, under the jaw.

This disease is not of a contagious character; in the acute form it is for the most part of short duration. In some cases the inflammation passes down the throat; in which case it is to be regarded as being more dangerous. If the disease comes on frequently, a predisposition to it is apt to be established. Those who have suffered from it once are more apt to have it a second time.

*Treatment.*—Tonsilitis, in its active form, must be treated with energy. Bloodletting, local and general, together with the use of blisters and purgatives, is the method usually adopted. We now know, however, that cold water is a better remedy than all of these combined; better not only in its immediate, but in its after effects. As to the method of using it, we are to proceed precisely according to the general rules of all severe inflammatory diseases.

Gargles are used with advantage in this disease; but there is nothing in the form of a wash that will be found better than pure, soft water. It will afford the patient great relief if he will often gargle his throat with tepid water, by the half hour at a time. In this way a great deal of tough phlegm will be removed from the throat, and the soreness will be relieved in a corresponding degree. Washing and rubbing the throat and chest externally, with the hand wet in cold water, will also be found a good remedy. This may, with advantage, be repeated many times daily.

*The chronic form of Tonsilitis.*—This is often seen in children of scrofulous habit. The tendency of the disease is to grow less as the patient becomes older. It should always be looked upon as a disease of debility, and treated accordingly. It has been a very common practice to cut off a part of one or both of the tonsils when they become chronically enlarged. This, of course, gives relief somewhat at the time; but it is to be doubted whether the operation does any real good. If a child is found to have enlarged tonsils, no pains should be spared in endeavoring to improve its general health.

## PTYALISM—SALIVATION.

Salivation is either spontaneous or artificial. Occasionally it occurs where no medicinal substance whatever has been administered, but more commonly it is the effect of some drug. In the spontaneous form it is seen oftenest in children, but sometimes also in adults. Salivation of the artificial variety is produced by various articles, as iodine, the preparations of gold, copper, antimony, arsenic, and, according to Dr. Watson, it has followed the use of castor oil, digitalis, and opium; but mercury, in some of its forms of preparation, is the most frequent cause.\*

"The symptoms of mercurial salivation," says Dr. Dunglison, "are well known; but, fortunately, not so much so as formerly, in consequence of the comparative unfrequency of the affection, owing to our improved knowledge of the therapeutical effects and *modus operandi* of mercury." By-and-by we may hope, when the powers of water and the evils of mercurial medicines shall come to be better understood, mercurial salivation will be known only as one of the ignorant and barbarous customs that once existed, but which can have no longer a place in the healing art.

The first evidences of mercurial salivation are a coppery, metallic taste in the mouth, accompanied by a soreness of the gums and teeth, and a loosening of the parts; the teeth also appear too long when the jaws are closed, owing to the inflammation in their sockets. Afterward the gums, inner surface of the cheeks, and mouth generally, swell and become very hot and painful. The gums fall away from the teeth, and at the edges a whitish secretion is poured out, of an albuminous appearance. The symptoms become more and more aggravated, till at length the parts that are most affected begin to ulcerate, the ulcers spreading to different parts of the mouth, presenting a fungus appearance, and blood readily issuing from them. The mouth becomes so excessively swollen and painful, that the patient, in many

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\* Salivation is sometimes produced by the influence of the imagination. Dr. Christison gives a singular example of this kind. A woman, who had a great aversion to mercury, was taking it with digitalis, for a dropsical complaint. Some one having told her what she was using, she immediately began to complain of soreness of the mouth, salivated profusely, and even put on the expression of countenance of a salivating person, although she had taken only two grains. On being persuaded, however, that she had been misinformed, the discharge ceased gradually in the course of one night. Two days afterward she was again told, on good authority, that calomel was contained in her medicines, upon which the salivation began again, and was profuse. It did not last above twenty-four hours; but the symptoms during that period resembled a commencing mercurial salivation in every thing but the want of fetor and redness of the gums.

cases, is scarcely able to open or shut it, or even to swallow the most liquid substance. In some cases, also, the tongue protrudes, and be-

Fig. 36.



SALIVATION.

comes so enormously swollen that it can not be withdrawn into the mouth. The breath is from the beginning of a very disagreeable odor, and the amount of saliva thrown off great. The average amount of salivary fluid generated in the healthy mouth is estimated at four ounces in the twenty-four hours; but eight pounds have been thrown off in the same time in salivation, and even as high as sixteen pounds has been recorded. This increased flow may continue for many days, and even weeks.

"The effect of mercury, in syphilis, was measured at one time," says Dr. Dunglison, "by the amount of saliva discharged. If the disease were of a certain duration, the patient must spit a quart; if of longer, two quarts, and so on; but now, since the conviction of the practitioner is, that salivation is rarely or never necessary, and that it is rather to be deplored—inasmuch as the increased discharge exhausts and irritates, without being of itself beneficial—the practice has been abandoned; and if we meet with excessive ptyalism, it is generally

in those who are easily affected by mercury, and in whom the affection supervenes rapidly, or in those whom the remedy has by accident been persisted in for a longer period than was contemplated. The books were formerly filled with descriptions of the horrible accidents induced by mercurial ptyalism, some of which the author has witnessed, as excessive sloughing, loss of teeth, caries of jaw-bones, protrusion of the tongue from the mouth, adhesions of the lips and cheeks, etc., with at times excessive febrile action, marasmus, and death."

Firm and incurable closure of the jaws, in consequence of the formation of ligamentous bands, and of the contraction that occurs during the cicatrization of mercurial ulcers of the mouth, is a not unfrequent effect of severe salivation. In some cases also, as just observed, the jaws become carious, so that exfoliations of bone take place.\*

"From the general tendency of mercury to produce this specific effect," observes Dr. Good, "those who are engaged in working quicksilver mines, as those of Idria, or New Spain, are almost continually in a state of salivation; and when, which is often the case, condemned as criminals to such labor for life, drag out a miserable existence in extreme debility and emaciation, with stiff, incurvated limbs, total loss of teeth, and equal loss of appetite, till death, in a few years, with a friendly stroke, puts a period to their sufferings."

Mercury, it is not generally understood, evaporates with great facility, even at common temperatures, and it is capable of combining with almost every kind of substance, and especially with metallic and gaseous compounds. Hence it is that persons who work at trades in which the metal is used, often suffer injury when they least think of it. In an accidental manner, also, the poison has been productive of great mischief, an instance of which occurred on board of an English vessel, the *Triumph* man-of-war, which had received on board thirty tons of quicksilver, contained in leathern bags of fifty pounds each, that had been picked up on the shore at Cadiz, from the wreck of two Spanish line-of-battle ships that had been lost in a storm in March, 1810. The bags were stowed in the hold and other low parts of the ships; but being saturated with sea-water, they

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\* Speaking of ptyalism, Dr. Christison remarks, that "the symptoms are often very violent, the salivation being profuse, the neck swelled so as to close the eyes, and almost fill up the space between the jaw and the clavicles, the tongue swollen so much as to threaten suffocation, the inside of the mouth ulcerated, nay, gangrenous, and at times the gangrene extends over the face. It is not uncommon, also, to observe severe and extensive necrosis without particular increase of the saliva."

soon decayed and burst. The quicksilver thus let loose, was collected as well as it could be, and committed to proper casks; but much of it escaped into the recesses of the ship, and not a little was secreted by the sailors, who amused themselves with it in various ways. The quicksilver that had escaped unnoticed sunk into the bilge-water, became partially decomposed, and ascending soon after, amid an intolerable stench, with the vapor of the water, coated any metallic substance in the ship with a black hue; and at the same time a general affection of the mouth took place among the men and officers to such an extent, that no less than two hundred persons became severely salivated, and did not recover till the ship, being carried into Gibraltar, was docked and cleared to its lowest planks.

There is, perhaps, no other drug substance which acts so variously as mercury. In some cases a very small quantity—a single dose even—is sufficient to induce ptyalism of the most violent character. An extraordinary case is mentioned by Dr. Bright, where five grains put on the tongue in apoplexy, and not washed over, excited in three hours most violent salivation, with such swelling of the tongue, that scarifications became necessary. Dr. Christison, the able writer on poisons, tells us that some persons have so excessive a sensibility to the action of mercury that they may be profusely salivated by one or two small doses, even of its mildest preparations. “Three grains of corrosive sublimate, divided into three doses,” says this author, “have caused violent ptyalism. Fifteen grains of blue pill, taken in three doses, one every night, have excited fatal salivation. Nay, two grains of calomel have caused ptyalism, extensive ulceration of the throat, exfoliation of the lower jaw, and death. Three drachms of mercurial ointment applied externally, have caused violent ptyalism and death in eight days.” On the other hand, also, it is to be remarked, that some constitutions are hardly capable of salivation at all, although the poison must, in such cases, act in some other and perhaps more destructive way.

Another peculiarity of mercurial salivation is, that a long interval may elapse after the administration of the mercury has been abandoned before the effect on the salivary glands and mouth begins—mercury in small doses being what is called a cumulative poison, or a poison the influence of which accumulates silently for some time in the body before its symptoms break forth. This interval is sometimes several weeks, and in some instances many months. It has happened in some cases where mercurial ointment had been rubbed upon a part distant from the mouth, the ankle, for example—that several months afterward violent salivation has supervened.

**Duration.**—In the majority of cases mercurial salivation runs its course in from two to four weeks. There are some cases on record, however, from which it would appear that there is hardly any limit to its possible duration. Linnæus met with an instance of its continuing inveterately for a whole year. Swediaur has known persons languish for months and years from its effects; and one observer, M. Colson, knew an individual who had been salivated for six years.

Of the other forms of salivation, those in which medicinal substances have nothing to do in its production, a few words should be said. Thus in pregnancy, this symptom in some instances becomes a very troublesome one, which, however, may be regulated, provided the patient have the means and can be induced to follow a proper hygienic course.

In common sore throat, if the pain and swelling are so considerable as to render deglutition very painful and difficult, there may be a profuse salivation; but the fetor of the breath, if such be present, is clearly of a different kind from that caused by mercury. Salivation, besides, happens now and then as an idiopathic disease.

**Treatment.**—The facts and observations which I have here introduced respecting salivation, have been given more with the view of persuading the reader of the importance of avoiding rather than curing the evil.

In the spontaneous forms of the affection, whether in pregnancy or other states of the system, the great thing is restoration of the general health.

Mercurial salivation is always a serious injury to the system. The late celebrated Dr. Beck of this city assures us, that the system can never fully recover itself after it has once been subjected to a mercurial course. The patient who has had the misfortune to get into this predicament, must make the best of it he can.

It is supposed by many that cold water is dangerous if used while the system is under the influence of mercury. It is true that this poison does render the body much more sensitive to the impressions of wet and cold as a *secondary effect*; but while mercury is being administered, and while salivation is upon the system, there is no danger whatever from the use of cold water properly applied; and it is, moreover, one of the best possible means of invigorating the system, thus enabling it the better to ward off the mercurial effects.

I therefore give no specific rules for the treatment of mercurial salivation; but remark, simply, that each case should be managed on general principles, and according to the symptoms present. If there is fever in connection, this must be managed like any other common febrile

attack. The strength should be supported, and the system purified as much as possible by occasional fasting and appropriate diet. The free exposure of the patient to a cool, pure air, was found by Mr. Pearson, a celebrated medical writer in England, to be one of the most decided means of checking profuse salivation.

*Driveling*, or *slavering*, is a sort of inert ptyalism, in which there is an involuntary flow of saliva from a sluggishness of deglutition, without any increase in the action of the salivary excretions. It occurs in infancy and in old age, as well as among dotards or idiots. In the first, it happens before the will has attained its full power over the muscles of deglutition; in the second, after the will has lost its power; and in the last, because this power is not exercised, although possessed. Time cures it in the first case; but in the other two medical treatment is of little or no avail.

#### DYSPHAGIA, OR DIFFICULTY OF SWALLOWING.

Dysphagia arises from various causes. It may be *constrictive*, in which there is a difficulty of swallowing, from a permanent contraction of the esophagus; *atonic*, in which there is simply debility of the muscles of deglutition; *spasmodic*, in which there is a sensation of wind in the stomach, compressed into the feeling of a ball ascending into the esophagus, and producing a sense of strangulation; *uvular*, arising from enlargement, relaxation, or absence of the uvula; *lingual*, from protrusion or magnitude of the tongue; or *pharyngeal*, in which the obstruction is caused by a polypus, or other excrescence in the pharynx.

The esophagus is not often the seat of any serious malady; but in some cases a morbid growth or stricture occurs in the part. In some instances, indeed, half the length of the esophagus has been found completely gorged by a fleshy or glandiform excrescence. A neglected catarrh, common sore throat, small-pox, syphilis, a highly nervous or spasmodic diathesis, the smoke of tobacco, the use of stramonium, the abuse of mercurial preparations, drinking too largely of coffee, or any other fluid immoderately, hot or cold, have all been assigned as causes of this disease.

The *treatment of morbid growths and stricture* in the esophagus is, for the most part, confined to the use of the bougie. In some cases the part may, by careful and persevering management, be so much dilated as to effect a lasting, and perhaps permanent cure. Too often, however, the relief will only prove temporary, the patient in the end sinking from want of food.

In this form of the dysphagia, when the esophagus has wholly closed.



individuals have been kept alive for several weeks by the use of nourishing clysters, such as of broth, gruel, etc.

In the *atonic* variety of dysphagia, the muscles sometimes are so paralyzed or inactive that nothing whatever can be swallowed; but such cases are not common; yet it often happens that there is great difficulty of deglutition arising from the weakness of the parts. The affection may be the effect of apoplexy, and other diseases or injury of the brain, fevers, exposure to cold and damp, and of disease of the digestive organs. It is also a symptom of the last stages of fever and of pulmonary consumption.

The *treatment* of this form of dysphagia must vary according to the circumstances of the case. If it arise from apoplexy, the cure will depend upon the removal of the original disease. If it is associated with pain at the pit of the stomach, dyspnœa, palpitation, and flatulence, the cure will depend upon regulating the digestive function. Washing and rubbing the throat and chest often powerfully with the hand wet in cold water and the cooling wet bandage to the throat, are valuable resources. A draught of cold water, drank frequently during the daytime, as also at night and morning, has been frequently useful as a tonic in such cases. Electricity has operated favorably in some instances. Every thing should be done that may be to cause an improvement of the general health. Hard study, and all mental troubles, should if possible be avoided.

*Spasmodic dysphagia* is most common in persons of a nervous temperament. It occurs most frequently as a mere symptom of hysteria or hypochondriasis; often, also, it is traceable to gusts of passion or feeling, such as fear, anger, grief, etc. Young subjects, whose passions have never been disciplined, in consequence of fits of anger, become almost suffocated with the spasmodic constriction. Dr. Good mentions the cases of two clergymen who were at times afflicted with spasmodic contraction of the throat; in one, the attack usually came on during dinner; the regular action of the muscles in swallowing being converted, from debility of the organ, into the irregular action of spasm. The other experienced the first paroxysm while reading the service in his own parish church, and was incapable of proceeding with it. In this case the irregular action of the muscles of the glottis in speaking excited irregular action in those of the esophagus from contiguous sympathy. It was remarkable, too, that when the clergyman came to the same passage of the liturgy on the ensuing Sunday, he was obliged to stop again, for he found he could not get through it. But he preached with as much fluency as ever, and this, too, with nothing more than a syllabus of his discourse before him. In both these cases

Dr. Good informs us that he found the most effectual remedy at the moment to be a tumbler of cold water, swallowed gradually, and the application of a handkerchief, dipped in cold water, to the throat.

In the several varieties of spasmodic stricture of the throat, the treatment during the intervals between the paroxysms should be such as is best calculated to restore the tone and energy of the system, and that of the nerves more especially. The complaint is curable in the great majority of cases, and probably in all.

The *uvular, lingual, and pharyngeal* forms of dysphagia are sometimes remediable by an operation for removing the obstructing part. Sometimes, also, nature performs the cure by the reduction of the swelling and enlargement. This would be more apt to take place if the general health is properly maintained.

#### MORBID THIRST.

The sensation of thirst does not often become diseased, yet such is sometimes the case. It may become *immoderate*, in which there is a constant desire for drink, with a sense of dryness in the mouth and throat; or there may be *thirstlessness*, in which there is a constant want of desire for drink. Some, however, are of the opinion that thirst is never an idiopathic disease, but only symptomatic of some other affection. As a symptom, excessive thirst is chiefly found in the hot fit of fevers, in diabetes, dropsy, cholera, dysentery, diarrhea, and other exhausting discharges. Nursing mothers and wet-nurses are also sometimes subject to it. The agony of thirst is in some instances, probably, as great as any that can occur. The opposite extreme of thirstlessness is a much more bearable condition.

*Immoderate thirst*, in whatever way it may be caused, should be gratified to the fullest extent. We are, however, to make the exception that if the body is fatigued at the same time of the desire for drink, the water or other liquid used must not be too cold. It is always dangerous to chill the body suddenly when greatly exhausted, whether by drink or immersion. Mere heat of the system, as in fevers, is no objection. In all cases of thirst it is safe to drink as largely as the patient desires of warm water, and, singular as it may appear, this will often be found to quench thirst more effectually than cold water. It is dilution, more than mere cooling of the system, that is needed in this symptom. External applications, as well as internal, are useful. Thus seamen, when out of fresh water, have found that by wetting their clothing two or three times in the twenty-four hours in salt water, they could assuage the cravings of thirst in a very satisfactory degree.

With regard to *thirstlessness*, it is to be observed, that if an individual subsists upon the products of the vegetable kingdom exclusively, and avoids stimulants of every kind, he will seldom experience thirst, except when exposed to an uncommon degree of exercise or immoderate heat. Dietetic habits have a truly wonderful effect in this particular. But there are other cases, such as in which there is real disease, and where little or no thirst is experienced, even when water is demanded in the system. In such instances the patient should, at proper times and intervals, drink a few tumblers of pure and soft cold water, with the view of giving tone and vigor not only to the stomach, but the system generally. If he is able to accompany the drinking exercise by some bodily effort, the good effects of the remedy will be materially enhanced. All other means of restoring the general health will also be useful.

#### DISEASED APPETITE.

*Voracity of appetite* may arise from a feeling of faintness or inanition; from exhaustion, as the consequence of severe exercise; fevers, or excessive discharges.

"There are many persons," observes Dr. Good, "who from birth or a particular period of life, without any habit of indulgence, are capable of taking into the stomach an enormous quantity of food, and can not be satisfied without it, from a constant sense of faintness and inanition, and who by no means increase in bulk in proportion to the quantity swallowed, being often, on the contrary, slender and emaciated."

In some cases this species of morbid appetite appears to be caused by a mal-structure of the stomach, in which way the food is allowed to pass out of the organ almost as soon as it enters it. The pyloric orifice becomes too much dilated, or has been too large in its original formation in some cases, and that portion of the stomach is also, sometimes, found maintaining too dependent a position. Dr. Good maintains, likewise, that in the hunger of general exhaustion the morbid appetite is in some cases caused by the secretion of an extraordinary quantity of gastric juice, by which the food is digested almost as soon as it reaches the stomach.

But whatever be the cause, the quantity of food devoured in some cases of morbid appetite is almost incredible. Dr. Mortimer relates the case of a boy only twelve years old; who, from a feeling of inanition, had so strong a craving that he would gnaw his own flesh when not supplied with food; when awake, he was constantly eating; the food given him consisted of bread, meat, beer, milk, water, butter, cheese, sugar, treacle, puddings, pies, fruits, broths, potatoes; and of

these he swallowed in six successive days three hundred and eighty-four pounds, eight ounces avoirdupois, being sixty-four pounds a day on the average. The disease continued for a year; and that the hunger did not depend upon an extraordinary secretion of gastric juice, producing a rapid digestion, was evident from the fact that the food was usually rejected soon after it had been swallowed; but whether it passed into the duodenum could not be ascertained. Numbers of cases in which an immense amount of food has been habitually swallowed, are on record in the various medical works.

Voracity happens often as a symptom of some other malady. In some forms of dyspepsia, and in pregnancy, it occurs in a most capricious manner not unfrequently. Fits of voraciousness come on often in the night-time, and such other periods as when we know most clearly that there is no natural, healthful demand for food. Immense quantities are sometimes devoured under these circumstances, the patient not being harmed, apparently, for the time. In some instances, likewise, there is a fanciful longing for some particular article. A case of this kind is quoted by Dr. Good, in which a lady, who was at the time pregnant, devoured four hundred herrings at a meal; but as to what the effect of such a meal was, and how it was disposed of, we are not informed. Dr. Burrows narrates a case of a patient who was in the habit of making way with an ordinary leg of mutton at a meal for several days together, and who fed, at the same time, greedily upon sow-thistles, and other coarse vegetables. In this example it was supposed that the food was forced through the pylorus before it had become chymified, thus passing onward through the intestines.

*Treatment.*—In the medical management of this affection we should, in the first place, endeavor to ascertain the cause of the difficulty. If it depend upon a malformation of the stomach or the pylorus, a perfect cure is, of course, beyond the reach of art. But the constitution may be benefited in such cases by restraining the appetite within proper bounds, for it does no manner of good to eat voraciously in any case. If the food does pass from the stomach before it has time to harm that organ, there is yet a tract of nearly forty feet of bowels which it must traverse, causing an irritation greater or less as it passes on its way. So, also, if the food is rejected by vomiting, as is often the case, the effort of retching always produces debility, more or less, and causing an unnecessary waste of the vital force.

It has been customary, in the drug-treatment of such cases, to administer medicines of a nauseating nature, so as for a period to prevent the patient taking nutriment of any kind. In some cases this may break in upon the habit and cure it; but it will be found to fail

in the majority of instances, and the stomach, besides, is weakened and injured in tone by the poisonous properties of the drugs. Fasting is a preferable mode; a course of the hunger-cure, properly persevered in, could not fail of doing good, and of aiding the patient in his efforts to throw off the morbid craving.

It is of great service in these cases to have the food of the plainest possible forms, and not in great variety at a time. The plainer and the more natural the articles taken, the sooner the morbid habit can be conquered.

#### ANOREXIA—LOSS OF APPETITE.

*Loss of appetite, anorexia, long fasting, or a want of appetite* sometimes happens as a distinct disease. In this sense only the affection is to be considered in this place.

Anorexia may be brought on in various ways—from exhaustion, caused by too great fatigue or excessive fasting; from mental emotion, violent passion, or other absorption of the mind; or from habit or other cause, enabling the system to abstain almost wholly from food for a long and indefinite time without faintness.

It is a singular fact in physiology, that both muscular exertion and long fasting, in a vigorous constitution, when carried to a sufficient extent, destroy the appetite. For a time they increase it, but afterward it grows less; and if the habit is kept up for too long a period, it may be with difficulty that the desire for food can be regained.

It is also an interesting fact to notice, that the mind, under certain circumstances, controls the sensation of hunger in a most remarkable degree. Every one knows that on certain occasions, when, having received at his meal-time some joyous news, his appetite, however strong, has left him in the most abrupt manner. Nor can any one experience a proper and healthful sense of hunger when laboring under the depressing effects of fear or grief. He may eat from a sense of the necessity of supporting life, but never from real hunger under such circumstances.

But the most remarkable physiological phenomena connected with this subject is the extent with which protracted fasting may, under certain circumstances, be endured. Doubtless, among medical as well as other writers, many cases of this kind have been given which were wholly fabulous; but there are others in which the testimony has been so strong and so trustworthy that no doubts can remain of their truth and accuracy.

*Treatment.*—One of the best evidences of the value of water-treatment is its power to restore a lost appetite. The reason why the hy-

dropathic processes act in this way is, that they promote a rapid change of matter in the system, and at the same time a tonic or invigorating effect. Water-patients uniformly get a good appetite in a short time after commencing the treatment. Exercise is also valuable.

#### DEPRAVED APPETITE.

It is a fact well established in physiology that the appetite may be *educated* to an almost indefinite extent. This we see fully exemplified in the dietetic habits of the different nations of the earth. A longing for improper and indigestible articles, however, occurs not unfrequently as a manifestation of disease. In hysteria, chlorosis, pregnancy, and some of the mental ailments, the appetite sometimes craves the most singular and disgusting articles. Depraved appetite is also sometimes brought on by a vain desire of improving the beauty of the person, of giving a graceful slenderness to the form, and a languishing fairness to the skin, by taking chalk, charcoal, acids, etc., in consequence of which the Greek physicians gave to this variety of stomach ailment the name of *softness*, or *effeminacy*. There are recorded examples of this disease in which there has been an inclination for devouring dirt, cinders, ordure, fire, spiders, lice, toads, serpents, leeches, bits of wood, hair, candles, and, as one author observes, more literature in the form of paper and printed books than is devoured by the first scholars in Christendom.

There have been instances of persons who have had a craving for harder substances than those mentioned, and who have feasted themselves with leaden bullets, glass, stone, pieces of money, knives, etc. One man is said to have swallowed a hundred louis-d'ors at a single meal. Some have swallowed several knives at a single sitting, perishing, perhaps, soon after the exhibition of their temerity, and in other cases dragging on a miserable existence for several years.

Dr. Good mentions a case as happening in the United States, of a young man who had long been in the habit of swallowing various indigestible substances, such as buttons, musket-balls, and billiard-balls; and being thus initiated in the art, on the 22d of June, 1822, swallowed not less than fourteen knives in the course of the day. He sank gradually beneath his exploit, and died on the 25th of August. Two of the knives had been discharged from the body, one was found in the esophagus, and the rest in the stomach. The same individual, on one occasion, swallowed a gold watch, with its chain and seal, which were evacuated on the ninth day, darkened in color, but not otherwise injured.

*Treatment.*—The cure of depraved appetite depends more upon the

will of the patient than any other single circumstance. The various means of improving the general health are also useful.

#### DIRT EATING.

*Dirt Eating*—called also *African Cachexia*—is a variety of depraved appetite that prevails among the colored population of hot climates, and appears to belong to the colored race almost exclusively. It is said to have long been known in tropical America as the most fatal disease to which that race is subject, and is considered to be as certainly fatal as consumption itself. The disease has been often witnessed in the southern portions of the United States; and there have been instances in Louisiana of large planting establishments having been entirely broken up by the extensive mortality among the slaves from this cause.

*Symptoms, Characters, etc.*—In consequence of the morbid condition of the system, the patient experiences an irresistible craving for substances of an indigestible or disgusting character. Clay, earth, mortar, dust, ashes, chalk, slate, bricks, and shells are often devoured in enormous quantities, while the ordinary forms of aliment are almost wholly rejected as disgusting and worthless. The appetite is, in short, perfectly depraved. There is more or less uneasiness of the stomach, dyspnœa on the slightest exertion; great inactivity and debility; despondency, and desire to be alone. There is also change of color of the surface, which, if black in health, becomes of a brownish green or olive hue. The blood becomes impoverished, the strength fails gradually, till at length the patient becomes dropsical; as in other cases of impoverished blood and when dissolution is near.

It is said that in all cases of dirt eating there are several symptoms of primary importance, which are, "the peculiarly white and pallid appearance of the palms of the hands and soles of the feet; but more particularly the bleached and bloodless aspect of the inside of the lips, the gums, the tongue, and lining membrane of the mouth generally. The tongue and gums often have the peculiar, translucent, and pallid hue of white wax."

*Prognosis.*—This must be regarded in general as unfavorable. It is said that cases of cure are exceedingly rare, owing to the obstinacy with which the habit is persevered in. The disease sometimes destroys the patient in a short time; but usually it lasts for many months, and even years, in some cases.

*Causes.*—Both sexes appear to be alike liable to this disease, and it may come on at almost any age, as early as at five or six years.

Dr. Carpenter regards, that in the Southern States severity of treatment, giving rise to depressing emotions and to a sense of degrada-

tion, sometimes concurs with improper and inadequate fare, in favoring the production of the singular malady. The despondency and general falling off of the powers of nutrition that accompany it are analogous to the same phenomena that sometimes accompany nostalgia or home-sickness. Insufficient food, damp and unhealthy dwellings, a damp, malarious climate, and over-work, have been esteemed as its greatest causes.

*Pathological Characters.*—After death the muscles are found to be peculiarly pale and anemic, and the same appearance is to be observed in the stomach and bowels. These are also sometimes ulcerated, and there is apt to be thickening or scirrhus at or near the pylorus. The mesenteric glands are often enlarged; the liver is hardened; the spleen large and soft; the heart soft and flabby; the blood thin, containing very few red corpuscles, and generally the products of dropsy are perceptible.

*Treatment.*—It has been stated that this disease is generally fatal, because of the persistence with which the habit is followed. If it were possible to restrain the patient from eating dirt, and compel him to partake of healthful aliment or nothing, in many cases a cure doubtless could be effected. Putting upon the patient a close wire mask has been used successfully in some cases, although a barbarous proceeding. The general plan of treatment should be such as is calculated, in the best possible manner, to promote the strength. It is considered an important point to excite new impressions in the nervous system, so as to break in upon the despondency, and prevent its distressing and almost invariably fatal results.

#### INFLAMMATION OF THE STOMACH—GASTRITIS.

This is a very rare disease in the acute form, except as happening from poisons. The stomach may, however, like any other part, become inflamed through ordinary causes.

*Symptoms.*—First, there are the ordinary evidences of inflammation, rigors, followed by heat, languor, lassitude, etc. At the same time a severe pain is felt at the epigastrium, which is increased by the slightest pressure and by respiration. There is a burning heat in the stomach, and constant retching and vomiting if any thing is taken into the part. Various matters are thrown off, and even blood in some cases. The disease is very rapid in its course, especially if caused by poison; it may end fatally in a few hours, or in two or three days. The disease varies greatly in its intensity in different cases.

*Causes.*—These are, corrosive and acrid poisons, swallowing of hard, pointed substances, mechanical injuries, etc.



*Treatment.*—This should be similar to that for any other internal inflammation. The stomach also should be thoroughly cleared of its contents as soon as possible. The vomiting is to be kept down by the sedative effect of cold water generally; the more the fever is kept in check the less of this symptom there will be. Relapses in this disease are common from errors in diet.

#### ORGANIC DISEASES OF THE STOMACH.

The diseases of the substance of the stomach are necessarily difficult to diagnosticate.

*Softening of the stomach*, that is, the mucous membrane of the organ, is a common appearance in the fatal cases of dropsy and other visceral diseases that have arisen from the intemperate use of ardent spirits. According to Dr. Dunglison, in many of these cases there may have been no symptoms that would enable the observer to pronounce as to the character of the difficulty, except the ordinary symptoms of chronic gastritis.

The affection is somewhat common among children. It was first pointed out by the celebrated anatomist, M. Cruveilhier. It is indicated by the ordinary signs of acute gastritis. The patient sinks in from one to two weeks.

*Perforation of the stomach* is probably, in all cases, an effect of inflammation of the mucous membrane of the part. Some have supposed that the stomach may be perforated by the action of the gastric juice in some cases. The thing is doubtful. Dr. Beaumont ascertained that after digestion has passed, no gastric fluid is ever found in the cavity of the organ. Nor can digestion be going on at or near the time of dissolution.

*Symptoms.*—There is great pain and burning at the epigastrium, the heat spreading throughout the abdomen; “the patient rolls about in all directions, loses consciousness, and makes perpetual, but ineffectual efforts to vomit; the features become changed and hippocratic, the pulse small and frequent, the respiration anxious, meteorism succeeds, and death in a few hours.” The contents of the stomach pass into the cavity of the abdomen often.

In *cancer of the stomach*, the symptoms can not be distinguished from those of chronic gastritis. It seems Napoleon was pretty well aware of this disease existing in him before his death; but he was guided in his judgment of his case more from the fact that his father was known to die of the disease, than from any particular symptoms he could designate. It is, in general, a very painful affection, especially during its later stages. But then all of the painful symptoms of this kind are

experienced by some when there is nothing of a scirrhus nature present. Besides, many patients are always ready to imagine they have a cancer internally if they have pain and are talked to about it.

*Dilatation of the stomach* is also one of the structural diseases of this organ. It is apt to occur in connection with cancer of the pyloric part.

*Treatment of these Affections.*—In most cases this can be only palliative. We must watch the signs of pain, and especially the pulse and the heart, and treat the case accordingly. We must remember, also, that inasmuch as our surmises are so liable to be mistaken in all such cases, we should speak as encouragingly to the patient as the symptoms will warrant, and especially use our best endeavors to quiet his pains, using, however, no unwarrantable means in doing it.

#### INDIGESTION—DYSPEPSIA.

This is one of the most common of all maladies, and its symptoms are as numerous and various as the sands upon the sea-shore. It is both acute and chronic. It is oftener than otherwise the effect of too sedentary habits and abuses of the stomach.

*Symptoms.*—The most prominent are, feeling of a load or weight at the stomach, belching of wind and flatulency, clamminess of the mouth, white or brown coating upon the tongue, loss of appetite, depression of spirits, peevishness, and fretfulness. The bowels are either constipated or too loose, the two symptoms often alternating.

*Pyrosis, or water-brash,* is a symptom of dyspepsia, characterized by copious evacuations of a watery fluid, generally without taste, but sometimes acrid, attended with a sense of weight and burning in the pit of the stomach. In some, water-brash is so copious that the patient can, as we say, *vomit at pleasure*.

*Heart-burn* is also one of the concomitants of this protean disorder, and is owing to the presence of acid or other offending matters in the gastric cavity. Free water-drinking is a good palliative.

*Gastrodynia, or cardialgia,* which signifies a pain in or about the stomach, is often an accompaniment of heart-burn. It is best relieved by drinking freely of warm water, even to vomiting, if necessary.

*Hiccough,* also, belongs to the great family of dyspeptic symptoms, and is too well known to need any particular description. It is a frequent complaint of infancy, and is also common among drunkards. It denotes irritability of the stomach. Its immediate presence is owing to indigestible matters in the stomach, wind, etc. Free water-drinking generally removes it. A sudden fright will generally cure it for the time.

Dr. Gully makes two great distinctions in dyspepsia; he speaks of *mucous* dyspepsia, in which the mucous membrane of the stomach is more particularly implicated, and *nervous* dyspepsia, in which the nerves of the organ and of the system generally are supposed to be most at fault. The latter form of the disease is often very intractable.

*Causes.*—Dyspepsia has as many causes as there are means of deteriorating the general health. Some have supposed that it arises only from wrong impressions made upon the stomach. Others would have it that dyspepsia is only caused by mental harassments. Dr. Edward Johnson tells us that in England indigestion is a disease scarcely ever found among the *temperate* laboring poor; that it occurs almost constantly (to a greater or less degree) in the middle classes, or among those who *do* live by the sweat of the brain, and *not* by the sweat of the brow; and that it is also found constantly among the upper classes—that is, among those who live by the sweat of neither brow nor brain, but who do live, nevertheless, from choice, under the perpetual influence of *strong nervous excitement*. Dr. Johnson thus attributes dyspepsia mostly to wrong impressions upon the brain, the stomach becoming deranged in its action by sympathy with this part; and he regards the brain as a sort of magnetic battery, that gives off nervous energy to the various parts of the system, the stomach among the rest. But this, as we have seen elsewhere in this volume, is not a true doctrine. As far as mere animal life is concerned, the brain is more dependent upon the stomach than the stomach upon the brain. My own opinion is, that indigestion is much oftener caused by abuse of the stomach than in any other way. In England, the laboring poor have hard work to obtain food enough to support life; their fare is of the simplest and coarsest kind. But in this country it is different; the poorest laborers live upon the “fat of the land.” Consequently we often see the worst forms of dyspepsia among those who are, as we may say, never mentally worried, and who scarcely take it upon themselves to think, any more than the animals do. Dr. Johnson’s theory, therefore, does not hold good on this side of the water.

Tea and coffee in this country, tobacco, and the use of narcotic substances generally, exert a great influence in causing dyspepsia. As there is no nation on the face of the globe in which there is so much independence and general thrift as there is in the United States, so there is none in which indigestion is so common. Food and luxuries are everywhere cheap and abundant, and labor and good pay generally to be had. Consequently people make themselves dyspeptic in a great variety of ways.

The American people have, moreover, been noted for their love of

drugs. What princely fortunes have been made by medicines, quack nostrums for the multifarious ills to which our people are subject, all with the promise of a certain cure ! Some of the worst and most inveterate cases of dyspepsia have been caused by this species of drug-medication. Many portions of our country, too, are malarious and unhealthy naturally ; and not a few cases of indigestion—old and incurable—are to be found as the results of allopathic treatment. If a person has been once thoroughly mercurialized, his digestive organs can never fully recover.

The foundation of life-long dyspepsia is often laid in infancy or childhood. Children, generally, are nourished and fed without any proper regard to the physiological laws. They are not only allowed nutriment too frequently, and at irregular intervals, but the most mischievous articles are freely given. Almost at the very first breath of life the infant is dosed with a portion of oil, sweetened water, etc. ; and whenever infants and children are fed, they are allowed sweets in the greatest freedom, pastries, sugar-candies, etc., not excepted. In this way a vast amount of dyspepsia is originated.

*Treatment.*—Volumes have been written on the treatment of this disease, and many more will be put forth ; but the sum of the whole matter is comprised in a few golden rules. Whether patients generally can be induced to follow them, is another question.

In the first place, the dyspeptic should take as much exercise in the open air, regularly and daily, as he can bear without absolute exhaustion. He should become *fatigued*, but not *exhausted*.

In the second place, he should go to rest early, and at the same hour every night. He should also rise early in the morning, and observe the same regularity as to time. If he should not happen to sleep well every night, he should yet observe these rules strictly. His bed and pillow should be hard rather than otherwise, his sleeping-room as airy as may be, and he should use the least possible amount of clothing consistent with comfort. It is always better to sleep too cold than too warm, even in consumption itself.

A most important rule is, that the dyspeptic eat precisely at the same hour each day. If he is unavoidably thrown out of his time, he should drink some water, and wait till the next regular meal. The utmost regularity in the times of eating is of the greatest importance to one who is suffering in this way.

The most important rule of all regarding aliment, is that which relates to quantity. First, quantity, and second, quality, both of which are of great consequence in their place. The *rule of all rules* is, not to over-eat. IF THE DYSPEPTIC WILL BUT PERSEVERE IN TAKING THAT

AMOUNT, AND THAT AMOUNT ONLY, HOWEVER SMALL IT MAY BE, WHICH HIS STOMACH CAN RECEIVE AND DIGEST COMFORTABLY, HE WILL SOON FIND HIMSELF ON THE HIGH-ROAD TO HEALTH; and it will surprise any one to find on how small an amount of nutriment—wheat-meal bread, for example—he can subsist and grow better. I repeat, then, THE DYSPEPTIC SHOULD NEVER OPPRESS HIS STOMACH WITH FOOD. If he can take only an ounce, or the fourth part of that amount, let it be so. If he will persevere IN NOT OPPRESSING HIMSELF, he will soon grow better, and be able to take more. Flesh, he should remember, is no sort of criterion for health.

As to the kinds and qualities of food most proper for one suffering from indigestion, the reader is referred to the remarks on “Diet” in this volume. I lay down this important rule, however, that the dyspeptic should take the most healthy articles for a healthy stomach, not minding if they seem to disagree a little at first. There is no truth in the old saying, that what is one’s meat is another’s poison. Healthy food is healthy food always. BUT BE SURE TO REGULATE THE QUANTITY ACCORDINGLY AS THE STOMACH CAN BEAR.

As regards water-treatment proper, every thing that is calculated to promote the tone and vigor of the constitution is a help in dyspepsia. The whole force of the treatment is brought to bear advantageously in many cases. The timid are particularly advised to try the free use of the rubbing wet-sheet.

The rules of exercise laid down for consumption in another place, hold good also in dyspepsia.

#### CRAMP OF STOMACH—GASTRODYNIA—SURFEIT.

This affection, which is also sometimes called *spasm of the stomach*, *pain of the stomach*, *colic of the stomach*, etc., occurs in various degrees, either in connection with or without the other signs of dyspepsia. It is sometimes a very painful affection, and which, if not soon remedied, runs into a severe and dangerous inflammation.

*Causes.*—Sometimes cramp happens when there is no aliment in the gastric cavity, in which case a mouthful or a few mouthfuls of food will sometimes soon arrest it. But in all severe cases the difficulty is caused by an indigestible mass of offending matters that have been taken into the stomach. A young lady or gentleman attends a party, for instance, and eats and drinks heartily at night. Under such circumstances, gastrodynia is very apt to take place.

*Treatment.*—This is to be managed in all respects like a case of common colic; but relief is usually much sooner obtained in the former disease. I have often treated this affection, and have never, in a

single case, found it necessary to resort to stimulants and opiates, which Dr. Dunglison regards as "indispensable" in the severe forms of the disease. The reason why I have not used the drug remedies is, that the water applications are not only more effectual, but *absolutely safe*, which can not be said of any potent drug. The following case will give an idea of the proper treatment. The remarks were written out at the time :

At sea, on our homeward passage from England, 29th November, 1846, I was informed that Mrs. W., a very worthy English lady, with a young infant at the breast, wished me to see her in the steerage. I found her writhing and groaning with cramp in the stomach ; the extremities were cold, and the surface pale. She could not lie, but was in a sitting posture, held by assistants. The wind was howling through the shrouds, and the motion of the vessel so great that one was compelled to lay hold of any thing near in order to stand. I inquired whether Mrs. W. had been eating any thing that disagreed, when I was told that her bowels had been out of order for some days. She had lately taken her meals irregularly, and this day, particularly, her food had gone badly. She ate about evening, and this had made her worse ; then, in about an hour, a kind-hearted old gentleman prepared a nice dish of coffee, with spices in it, which he thought would do her good. This, of course, only made her the worse.

The treatment in such cases is simple and easily understood. According to the old mode of practice, some would adopt the plan of giving an emetic, tartarized antimony, ipecac, the sulphates of copper or zinc, flour of mustard, or perhaps what would be least harmful and most efficient of all these, lobelia inflata. By such means the patient may often be relieved, but it is always at the expense of injury to the stomach—an evil, greater or less, that should, if possible, be avoided. If the patient is a short, thick-necked, fat person, and something advanced in years, bleeding would be practiced before giving the emetic, with the view of preventing apoplexy. Others, again, would give large doses of some opiate, solid opium, or, what would act more quickly, laudanum in very large doses, as forty, fifty, or even sixty drops, often repeated until the effect is produced. Those who have undergone any of these (to us terrible modes), and have also tested the effects of water-treatment in like cases, can judge as to which are best.

I told Mrs. W. I should treat her differently from what she had been accustomed to, but would do precisely as if myself were in her case. I at once ordered an abundance of water, about blood-warm, to make it as mawkish as might be. She then drank, at my direction, as

quickly as possible, a number of tumblers, and instantly copious vomiting took place. A large amount of acid and undigested substance was thrown off. She drank and vomited again and again, till the stomach became thoroughly cleansed; the pain subsided, and she went to rest; the feet were rubbed, and a bottle of moderately warm water was placed to them, and she soon slept. Next day she nearly fasted, taking only a little water-gruel. She had no pain, grew stronger, and in every respect better. She omitted tea and coffee, and was careful in diet, exercised on deck in the open air, and thus grew better and better the whole passage.

In some cases of this kind it is necessary, besides the vomiting, to give injections. There is no danger of vomiting and purging too much, provided the water is pure, and used neither too cold nor hot. Quart after quart of lukewarm injections may be given, until the alimentary canal is thoroughly cleansed and the pain removed. Frictions upon the bowels, woolen cloths, or towels, wrung out of warm water, and the like, may be resorted to. I have never in one instance failed soon to bring relief in these cases. Once in a hundred, spasm may be so severe that the wet-sheet will be needed before complete relief can be obtained. Mark well the very small amount only of food allowable for some days after attacks of this kind.\*

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\* Here is a piece of useful advice for gormands, gluttons, winebibbers, etc., which was written about one hundred years ago by John Smith, C. M., of England, a judicious writer on water of that day:

"By means of water, all sickness at the stomach may cured, which is done thus: Take four quarts of water, make it as hot over the fire as you can drink it; of which water let a quart be taken down at several draughts; then wrap a rag round a small piece of stick till it is about the bigness of a man's thumb; tie it fast with some thread; and with this, by endeavoring gently to put it a little way down your throat, provoke yourself to vomit up again most of the water; then drink another quart, and vomit up that, and repeat the same the third and fourth time. You may also provoke vomiting by tickling your throat with your finger, or the feather-end of a goose-quill; but the cloth round a skewer maketh one vomit with most ease, which is done with no trouble when the stomach is full. And by this way of vomiting, which will be all performed in an hour's time, that vicious and ropy phlegm in the stomach, which causeth the sickness, will be cast up, so that the party in that time will be free from all that inward disturbance, If you use the remedy at first; but if the sickness hath continued for a time, it will require the same course once or twice more, which may be done in three or four hours, one after another, without any other inconvenience besides that of being a little sore in the breast the next day, which will soon go off by the force of nature. Which remedy, by forty years' experience, I look upon to be infallible in all sickness at the stomach, from what cause soever, and for all pains in the belly which seem to be above the navel; for these are all in the stomach, as by long experience I have found; which pains are generally counted the colic, but it is not so; for true colics are always below the navel, in the large intestine or colon. And by this means I have eased very great pains, caused by eating muscles that were poisonous; and it is also a certain cure for all surfeits or disorders that follow after much eating; so that the lives of multitudes might be saved by this means, who, for want of expelling what offends, do often die.

### NAUSEA, VOMITING, AND SEA-SICKNESS.

Nausca and vomiting sometimes occur as symptoms of indigestion merely; at others, as symptomatic in various fevers. Under all these circumstances they are to be treated on general principles, *i. e.*, the dyspepsia is to be cured, or the fever to be kept in check as the case may be. That peculiar form of illness called sea-sickness, is, however, to be noticed particularly in this place. Medical works are singularly barren on this subject.

This affection is identical with that which is sometimes produced on land by riding, swinging, rocking, turning round rapidly, waltzing, etc. Sea-sickness is the more persistent, only because of the longer continuance of the cause that produces it. If we were to judge of the evil effects of a disease by the painful sensations it causes, we should class sea-sickness as among one of the worst to which the human system is liable. No other affection, probably, is capable of rendering a patient more dispirited, and disregardful of every thing around him, and *even of life itself*, than this. It is said that Cæsar preferred throwing himself into the hands of his enemies, rather than suffer for a short period longer the horrors of sea-sickness. But this

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in misery; for, by thus cleansing the stomach at the first, the root of diseases proceeding from surfeiting, or unwholesome food, or any vicious humors from a bad digestion, are prevented, the stomach being the place in which all distempers do at first begin. No man was more subject to sickness than myself before thirty years of age; but since I found out the way of vomiting with water, which is now above forty years, I never have been sick for two days together; for when I find myself ill to any great degree, I betake myself to this way of vomiting, which in an hour's time restores me to ease, and perfectly removes my illness. And the same benefit all my family find in it, as do others also, whom I can persuade to try the experiment; which is such, that no physician whatever can advise a better to the king himself, should he fall sick. For, in the first place, it is not a nauseous remedy—it does not make the patient sick, as the best of all other vomits do; and then it is a vomit which is at our own command, since we can leave off when we please; and it infallibly works a cure to all sick stomachs.

“Some few, indeed, pretend that they are not able to vomit by this means. Now, if they can not vomit, let them take a pint of water, when they find themselves ill from eating, and do so every three or four hours, eating no more till they are hungry, and they will find the water digest and carry off what was offensive. The ingenious Dr. Cheyne, in his *Treatise of the Gout*, doth affirm that warm water, drank freely in a morning, fasting, and at meals (and I say cold water is as good), hath been a sovereign remedy for restoring lost appetites, and strengthening weak digestions, when other more pompous medicines have failed. And he adviseth gouty persons, after excess, either in meat or drink, to swill down as much fair water as their stomachs will bear, before they go to bed, whereby they will reap these advantages: either the contents of the stomach will be thrown up, or both meat and drink will be much diluted, and the labor and expense of spirits in digestion much saved. And indeed I have found, by long experience, that nothing causeth so good a digestion as fair water; but this requires time to free us from the uneasiness that an ill digestion causeth, whereas vomiting is an immediate remedy, and frees a man from upon the spot



affection is seldom, if ever, a fatal one—some say never; and that those who suffer from it are generally improved in health is admitted by all who are acquainted with it. It is true that persons may have sunk under it; but in such cases dissolution has doubtless been the effect of some pre-existing disease, which was ready at any moment to destroy life. Such cases must, I conclude, be very rare, for seamen tell us that none are ever injured by sea-sickness. Moreover, it appears to be a law of nature, that if a patient has a deep-seated and incurable disorder, such as consumption, abscess, etc., he does not experience sea-sickness at all. It is the more healthy persons only who are subject to it. The stronger the hold upon vitality, the more liable is the system to an attack.

Young children—particularly those at the breast—are much less incommoded by this affection than adults. In infancy, the stomach is longer in its conformation, having a more upright position than in the grown person. Hence regurgitation of food is accomplished with much less difficulty in the former. Aged persons are also less liable to it than those in middle life. It is admitted, however, that some persons who are apparently healthy, never know, however great may be their exposure, what the sensation of sea-sickness is; but these are exceptions to the general rule.

Some persons soon become accustomed to the sea, so as not to be subject to this affection. Others may go to sea as often as they please, while yet, if they remain upon land a few weeks at a time, and then go to sea again, the difficulty comes upon them as bad as before.

Animals, as well as men, are subject to sea-sickness, although not to so great an extent. It is said that quadrupeds, the head of which is naturally on a plane nearly horizontal with the heart, experience less of its symptoms than fowls with head more erect. I am not aware that animals of every kind actually vomit at sea, but other symptoms of sea-sickness not unfrequently present themselves.

*Nature and Causes.*—Some have maintained that in sea-sickness the brain becomes congested, which, say they, causes the nausea and vomiting. But this does not seem to be the case, for in all congestions of the head, there is flushing of the face, fullness, etc.; while in sea-sickness there seems rather to be a deficiency of blood in this part, for the face becomes pale, in a manner similar to that of a person who chews or smokes tobacco for the first time. Besides, one suffers less in sea-sickness, when in the recumbent posture, than when standing, which would not be the case if there were sanguineous congestion in the head. Besides all this, sea-sick persons are never found to suffer by any of the accidents, such as rupture of the blood-vessels

of the brain, effusion of serum in the part, or apoplexy, as happens in a hyperemic state of the brain.

It has also been contended that sea-sickness is caused by the shock or agitation communicated to the intestines by the motion of the vessel, which effect is communicated by sympathy to the brain. But this theory can not hold good, because in various exercises, such as horse-back riding, the abdominal viscera are subject to a greater degree of concussion than in sailing, and yet no such sensation as sea-sickness is experienced. It is true that riding in a carriage, especially backward, sometimes causes sensations analogous to sea-sickness; but this does not happen because the bowels are *shaken* by the exercise. In a hard, jolting vehicle sea-sickness is much less apt to come on than if the carriage is an easy one, hung upon springs.

It has also been supposed that sea-sickness arises wholly from impressions upon the nervous system, received through the visual organs. But this theory can not be maintained, inasmuch as it is found that blind persons are as liable to suffer from it as others; and it is experienced as much in the darkest night as at any other time.

In making out a true explanation of the nature of sea-sickness, reference must be had to the nervous system. The *cause* of the difficulty is the motion of the vessel, which never for a moment ceases, from the time it puts out to sea till a harbor is entered. This motion produces primarily a peculiar impression upon the nervous system, and secondarily a disturbance of the circulation, by which the stomach and other abdominal viscera become congested, causing in the brain a deficiency of blood. The vomiting is only an effort of nature to relieve the system, which is proved by the fact that the distress at the epigastrium and the nausea are much worse than the vomiting itself, and that after vomiting, the greatest relief is experienced.

*Prevention.*—Those who go to sea and expect to suffer from sea-sickness, should diet sparingly for some days previous to embarking. It is never well to go away in a hurry and state of excitement, as is generally done. Get well ready beforehand, and take the matter calmly. Making a great change, such as hurrying about business, etc., and then going suddenly upon ship where there is nothing to do, is one of the surest means of making a person sea-sick.

A position in the middle of the vessel, where the motion is less, has some effect in mitigating the suffering in this disease. Always the more pitching and tossing, the more the nausea and distress, and the longer continued. This it will be well to remember in selecting a berth for a voyage at sea.

*Treatment.*—It is an instructive fact that sailors suffer very little

from sea-sickness. The reasons are obvious. They are, in the first place, employed bodily and mentally. They are called out regularly at every watch, and the older sailors know and assure the younger that if they will but keep busy, go aloft, and stir about actively, they will soon get over the trouble. This they know by experience. True, they recommend girding the loins, and sometimes taking a good draught of salt water. But the great remedy with the sailor is, *the active and regular employment in which he is engaged.*

*Strong mental impressions* have much to do in quelling sea-sickness. It is not uncommon at sea, when a dangerous gale comes on, to see the passengers cured suddenly of their nausea and distress. This is, in fact, uniformly the result whenever great danger is apprehended at sea. The same thing is also seen on coming near shore. I have myself known a physican who lay in his berth almost the whole of a long winter passage across the Atlantic, and who, when told that we were in sight of shore and near New York, at which he had so long hoped to arrive, got up and went about on dock as nimbly as any one, without any further sea-sickness, and this while the sea was yet rough. Hence, a sea-sick person should manage to keep himself occupied as much as possible.

I myself know something experimentally respecting sea-sickness, having crossed the Atlantic and the North Sea several times, always suffering more less from the complaint. When I first went to sea I was willing to be sea-sick, so that I might know positively what it is and how to manage it. To this end I ate freely at first, so as to give old ocean the best possible chance of making me as ill as he might. And I did become sick enough, and so weak in two or three days that I could not crawl. One circumstance that made me much weaker than I otherwise would have been was, that I went without water as well as food for at least two days. Some water was brought me in the night in a tumbler that had had medicine in it. This caused me to loathe the water, supposing that the water casks had become foul. But when I found out my mistake, and that the beautiful Croton was as pure and limpid as when we first left the city, I set to drinking it in earnest, which, together with a wet-girdle, made for the occasion out of sail-cloth, and crawling out into the open air—for I could not possibly walk—soon improved my strength in a remarkable degree.

I say then to all, drink water freely from the first when you are sea-sick. Both man and animals can live more than twice as long with water as they can without it. Besides, it makes the vomiting easier. After one has had a little experience, he can tell well enough when the trouble is coming. If then, when the *qualmishness* begins

to affect him, he drinks two, three, or more tumblers of water—and blood-warm is best, though cold is useful—till he vomits, the effort is not only rendered much easier, but greater relief is obtained, and in a shorter time. The periods between vomiting will also thus be lengthened.

This water vomiting, then, I recommend as a great help in sea-sickness. To treat vomiting *by vomiting*, might seem paradoxical; but of the good effects of the practice I can testify, not only from my own experience, but that of many others for whom I have prescribed.

*The rubbing wet-sheet, and all hydropathic appliances which tend to bring the blood to the surface*, will not only be found useful in warding off sea-sickness, but also in supporting the strength.

*The wet-girdle* is an excellent remedy in this affection. In some cases it wards it off entirely, and in others it serves as an efficient palliative. PRIESSNITZ showed his rare shrewdness and knowledge of the laws that govern the human system, when he advised, as a remedy for sea-sickness, *that a heavy wet-girdle, tightly applied, be worn constantly, and re-wet often, without removing it*. Sailors know by experience, that a girdle, even though dry, is useful; and we know, also, that a *wet* one is still better. In the convalescence from sea-sickness, this remedy is particularly valuable.

*The great tendency to costiveness caused by sea-sickness* should make us watchful on this point. Brown bread, fruits, and other laxative articles, should constitute a large proportion of the food at sea. For some reason, there is much greater craving for vegetable acids at sea than on land. These, it is well known, help to keep up the proper movements of the bowels. Those who go on long voyages, especially, should see to it that they are well provided with dried fruits, for green can not always be had. Every one should also have access to a good injection instrument. If he depends upon cathartics, he will only be made the worse.

*Results of Sea-sickness.*—Almost all persons are benefited by this affection. If one has been dyspeptic, he is, perhaps, surprised to find, when he gets on land, how strong an appetite he has, and how vigorous and perfect his digestion has become. The more he has suffered, the greater the benefit, as a general thing. But how comes this benefit? Is it by the retching and vomiting that strains the diaphragm, stomach, and abdominal muscles, often so much that they become extremely sore? Is it by crowding the blood forcibly into the head, as the act of severe vomiting does? No; it is none of these; such are only the bad effects, and would be better avoided, if that were possible. IT IS BY THE BENEFICIAL POWER OF FASTING THAT THE BENE-

FIT OF SEA-SICKNESS IS CAUSED. It is a law of nature, that when the body is wasted for a time by want of food, it grows more pure. Nor does abstinence cause disease, as many suppose. A person who dies by starvation, dies of *debility*, and not of *disease*. It is the purification of the system, then, that causes the benefit in sea-sickness; and this could be accomplished by suitable fasting, better without the retching and vomiting and giddiness, than with them. But so good and useful are abstinence and fasting, it will repay one to take a voyage at sea, if he can but be certain of becoming *really* sea-sick, so that he will be compelled, for a time, TO ABSTAIN WHOLLY FROM FOOD.

### COLIC—ILEUS.

Colic is to be attributed to a vitiated state of the secretions and weakness of the bowels generally. It may either precede or succeed inflammation of the alimentary canal, or it may occur without any traces of inflammation whatever.

*Symptoms.*—These are, twisting pains in the bowels, particularly about the umbilicus, alternating with intervals of ease; vomiting; constipation; anxiety, with little or no febrile excitement; sometimes speedy sinking. The pain, unlike that of inflammation, is usually relieved by pressure.

In *bilious colic* the symptoms are somewhat different from a common spasmodic attack. Preceding, and in connection with it, there is a vitiated condition of the biliary secretion; and, prior to the appearance of the symptoms of colic proper, there is disorder of the stomach and bowels; bitter taste; yellow fur on the tongue; want of appetite, with, perhaps, nausea and vomiting; oppression at the pit of the stomach, etc. In the attack the pain is very severe, the thirst great, and vomiting of bilious matter takes place; the bowels also act freely, and the discharges are largely charged with bilious matters. The disease occurs both endemically and epidemically, and at different seasons of the year.

*Prevention and Cure.*—That colic is preventable, I can myself bear testimony. Before I discontinued the use of flesh-meat I was subject to attacks of the disease, some of which were very severe—so much so, that on one occasion I nearly lost my life between the sun's rising and setting of a summer day. I was at school, and had been actively engaged in hard study. I had no more idea of the necessity of exercise than a child; as a consequence, it was, as is usually the case with students, almost wholly neglected. I was in the habit of eating all manner of rich and indigestible articles, and used freely of tea and coffee, never having heard it questioned as to whether they were conducive to

health. I went to church during the forenoon, at the time referred to, feeling well as usual. In the afternoon, however, there came a great change over me—I experienced, in short, a real bilious colic. I was obliged to leave the church, the doctors were sent for, and long before the sun went down I was drugged into a state of wildness and delirium, which I look back to with the utmost horror even at this day. The doctors thought me dangerously sick, and had my parents sent for. I remember the elder of the physicians proposed, as a last resort, an injection—and in such a way as made me think it as a procedure next to the process of cutting a man open outright. I was as ignorant of the nature of clysters as the unborn child; and the doctors, evidently enough, knew as little about them. But, as it happened, I recovered, in spite of the drugging. Two old doctors—gray-headed old men as they now are—have not even yet learned how to cure colic. I have no doubt if they were now attacked as I was, they would choose to be drugged in the same old way in which they treated me. With my present ideas I do not consider such men competent to doctor a dog. Nor can we hope to teach them any thing new this side the grave; they must live and die as they are.

After I left off the use of flesh-meat, butter, tea, coffee, and reformed my habits generally, I found a great change for the better in regard to susceptibility to colic. I am sure I am not mistaken in this matter, for I did not leave off the use of bad things all at once. Sometimes I indulged, and sometimes had to pay the penalty. Finally, I found that by properly living, I could keep off these attacks altogether; and I have seen the same thing in a number of other cases.

I had a grandfather who lived to be about ninety, and who, I remember, used to be subject to very severe attacks of spasmodic colic. Often he has been taken up from his fields in a condition of agony which it was terrible to behold. Somehow or other he lived through all these attacks, and I believe was never in the habit of sending for a doctor for them. He was in the habit, as was common among farmers, of eating daily of fat pork. For some reason unknown to me he left it off, and, as nearly as I can recollect, the tendency to colic left him about the same time. At all events, we know that fat makes a man bilious, and biliousness tends to colic. Those who abstain from all greasy food I think will seldom if ever get this disease.\*

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\* The Rev. Dr. Hancock, who wrote upward of one hundred years ago, tells us that he was well satisfied, partly from experience, and partly reason, that cold water is a very good cure for the colic, and that it will not only cure a fit, but take away the cause of it. "I have some experience as to myself," the doctor remarks. "All the time of my life, till I knew the use of water, I was as frequently troubled with fits of the colic as most people are, though, I thank God, never in any dangerous degree, but sometimes troublesome enough. Since I

The treatment of a fit of common colic is in general simple, and the cure easily effected. The great thing is to clear the stomach and bowels as soon as may be of their morbid contents. One or two full injections of warm or tepid water will often suffice. But in some cases it is necessary to persevere, as we say, long and hard. Gallons upon gallons of water are given, both at the mouth to cause vomiting, and the bowels to clear them of their contents. We use also cold sitting-baths, prolonged as much as may be found necessary, with a good deal of rubbing the bowels with the wet hand. Going at once into a cold-bath is a valuable thing in some cases, and no one will get harm from cold water while the pain is upon him. Warm-baths may also be used in alternation with cold; while the cold sitting-bath is taken, the feet may be placed in warm water, and the same may be done after any of the cold applications. It does no good to keep the feet very chilly in such cases. We should persevere with the several methods, one or more of them, accordingly as we may, till relief is obtained.

The negro's cure of wind colic is to have the patient stand upon his head or hands, with the feet upward. This position of the bowels soon sets the gas free in many cases.

Dr. Elliotson tells us that when every thing else has failed, he has known this affection of the bowels overcome by taking the patient out of bed and dashing two or three pails of cold water upon the abdomen.\*

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have drank more or less water almost every day (the English people seldom drink water at all), I do not remember of having one touch of it, or if I have forgotten myself, it has been so very rarely as not to be worth my notice. I impute this to my drinking of water, and verily believe I have cause for it.

"So far as to experience. Now as to what I believe of the cure; if one that is troubled with a fit of the colic would drink a quart of cold water, and keep himself in a moving posture, now sit, now lie, sometimes on one side, sometimes on the other; lean forward, lean backward, tumble on a bed, and, if he can, sometimes stand on his head, or if he can bear it, get into a coach and ride on the stones, the water (as it is one of the best things to expel wind) would set the peristaltic motion of the bowels at work, so as to take off the fit. I can not say I have ever tried it, but am confident it would do the work.

"And as to the taking away the cause of colic, cold water, especially if we continue now and then a draught of it, will so dilute, cool, and modify the humors in the bowels, that they will easily go off with the evacuations that nature requires that way; whereas I believe the hot sulphurous waters, though they may do good while they are being taken (as any hot spirits may take off a fit at present), will rather harden and bake these humors that too much adhere to the bowels, and, on all occasions, will be apt to beget those windy vapors that are the cause of colic, by stretching the bowels beyond their tone, so that they can not contract themselves, and so weakening, if not destroying the peristaltic motion. I add but one thing: if this method were taken, if it should not work the cure, it would do little harm by swelling the bowels, for it is a great mistake to think that water, if seasonably taken, is apt to increase wind."

\* Priessnitz's treatment of colic was very simple. As he gave it me, it is this: "Prolonged cold sitting-baths, with wet-hand rubbing the abdomen, and cold clysters alternating.

## LEAD, OR PAINTER'S, COLIC.

Most persons who have much to do with the preparations of lead, experience at one time or other symptoms of this species of colic.

*Symptoms.*—Before the attack of colic comes on, there are evidences of the effects of lead upon the system, in all cases, as some hold. These evidences are: a peculiar bluish or bluish-gray tinge of the gums, which sometimes extends over the mucous membrane of the mouth generally, the teeth become discolored and carious, there is a sweetish, styptic taste in the mouth, with a peculiar fetor of the breath, sallowness of the skin, and dull, yellow tinge of the conjunctiva, general emaciation, small, soft, and compressible pulse, and, in some cases, a considerable reduction in the number of its beats. The appearances of the gums and mouth are particularly to be depended upon.

This, like other forms of colic, varies greatly in its intensity in different cases. At times the pain becomes so excruciating that the strongest man is made to writhe about and weep like a child. The pain, in most cases, is relieved by pressure. Generally the bowels are constipated; the evacuations resembling those of sheep, more than the human subject. The pains may be felt in the limbs as well as abdomen, and sometimes become paralytic. The disease is much more obstinate than common or bilious colic; in the old treatment, a week at least is usually required to obtain relief. In fatal cases, the patient becomes delirious, and has violent convulsions before death.

*Causes.*—Workers in white-lead appear to be most subject to this disease. The makers and grinders of colors, painters, plumbers, potters, type and other founders who use lead, printers, miners, and all, indeed, who work in or with the metal are liable to it. Swallowing the poison, through lack of proper cleanliness, is a common cause of lead colic. In an extensive smelting establishment in Cornwall, England, in which cases of the disease were common, it was almost wholly abolished after an order had been issued and strictly enforced, that no workman should be permitted to partake of food until he had washed his hands carefully, and had the assistance of a nail-brush. But breathing the poison is believed to be the most common channel of its introduction into the system.

*Treatment.*—When the pain is terrific, the most active measures must be employed, just as we would in the other forms of the disease.

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Persevere till relief is obtained. If the pain is of a spasmodic character, the rubbing wet-sheet is valuable; twenty or thirty applications of the *abreibung* I sometimes make in the course of an hour or two. The treatment has always brought relief." That is better than can be said of drugs.



Between the periods of using the more active measures, the patient should lie most of the time in the wet-sheet. Warm applications are used at the feet, if necessary.

### INTESTINAL WORMS.

It is a sad commentary on civilization, that while savage nations are not infested with living reptiles in the alimentary canal, one half at least of the individuals composing the more enlightened nations are afflicted in this way. This most certainly ought not to be. It is man's duty, no less than his privilege, to study and understand the laws of his being, in such manner that he may be enabled to avoid the causes of disease and premature death.

A few varieties only of worms are found in the intestinal canal. According to Dr. Dunglison's enumeration, they are :

1. The *long thread-worm*—*trichocephalus dispar*—which is a round white worm, from an inch and a half to two inches long, and usually found in the large intestines only. They are said to be very common in Ireland. More than one thousand, it is said, have been found in the intestines of a female.

2. The *maw*, or *thread-worm*—*ascarides*—*ascaris vermicularis*—usually found in the rectum, but sometimes migratory. They are sometimes found gregarious in the intestines, in the form of a ball. They are more commonly met with in children, but not unfrequently also in adults. They lodge in the generative parts of both sexes, when great personal uncleanness is suffered to exist. It is affirmed that ascarides, in great numbers, have been found in the bowels of a new-born child.

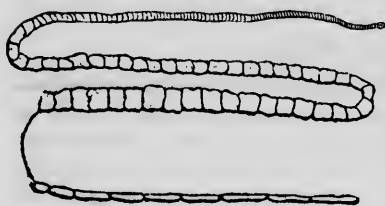
3. The *long round worm*—*ascaris lumbricoides*—which is most commonly met with in the intestinal canal, especially the smaller intestines. They may, however, exist in any of the alimentary cavities, and are not unfrequently voided by the mouth. These also sometimes congregate in the form of a ball. As many as 217 have been voided at one time, and 540 within a short period. The worm is usually from three to twelve inches in length, and about a line and a half in diameter. The color is sometimes pale or milky, sometimes reddish and even blood red.

4. *Stringylus gigas*, usually a few inches only in length, but in some cases three feet, is seldom found in the alimentary canal. The kidneys is their more common habitation.

5. The *fluke*, or *liver-fluke*—*distoma hepaticum*—is a flat worm, an inch or more in length, of a yellowish, greenish, or brownish color these are sometimes found in the gall-bladder, from whence they pass into the intestines. Fluke is a rare species.

6. The *broad tape worm*—*tænia lata*—which is flat, or nearly so, from ten to twenty feet long generally, and in its largest part from a few lines to half an inch broad. It is usually broken before it is discharged ; but an unbroken specimen has been known sixty yards long. It is very uncommon in the United States, and fortunately not frequently met with in any country.

Fig. 37.



THE BROAD TAPE-WORM.

7. The *long tape-worm*—*tænia solium*—commonly a few feet long, but at times of an enormous length, as much as six hundred feet of the animal having been said to be produced in one man. It inhabits the small intestines principally. According to some, it may exist at the same time of other worms.

In France, it has been estimated that about one person in one hundred is affected with tape-worm. We can not know of a certainty what the proportion is in the United States ; but we have reason to believe that it is much less. Tape-worm is certainly very rare with us. But the civilized world over, about one half of the whole number of children are found to have either the round or the thread-worm. This has been the estimate in Europe, and I am inclined to believe that the proportion is still greater on this side of the Atlantic. Worms are certainly very common with our American children.

Some are in the habit of attributing almost every thing to *worms*, and others, worms to almost *every thing*. The one says worms cause indigestion, costiveness, apoplexy, and even mania and idiocy, while the other holds that a great variety of diseases causes worms. The truth lies between the two, and the most that can be predicated with certainty on the subject is, that intestinal ~~in~~vermination is an evidence of depraved health.

It is proper in this place, however, to mention a set of symptoms which are sometimes relieved by the discharge of worms from the alimentary canal. These are, headaches, vertigo, torpor, disturbed dreams, sleep broken off by fright and screaming, convulsions, pyrexia, thirst, pallid hue, foulness of the mouth, offensive breath, cough, dyspnoea, itching of the nose, pains in the stomach, nausea, deranged appetite, voracity, leanness, tenesmus, itching of the anus, particularly toward night ; dejection of films and mucous, epistaxis, hemorrhage from the womb or bowels, etc. And yet it must be remembered that

each and every one of the above symptoms occur, and that often, when there are no worms whatever in the intestinal cavity. The only positive proof we can have of the existence of these animals in a given case is their actual and visible expulsion from the body.

*Treatment.*—Drs. Good, Elliotson, and other able writers, lay down the principle, that our first object in treating for worms should be that of strengthening the system generally, and the alvine canal particularly, and that the expulsion of the worms themselves is a matter of secondary consideration. Dr. Good also affirms “that a decisive vermifuge process is yet a desideratum; for, first, worms lie, for the most part, so low in the intestines, or are so completely involved in viscid mucous or other slime, that oil of turpentine, tobacco-water, and mercurials, which readily enough destroy them out of the body, seldom go directly home to them when within it; and next, most of the medicines that promise to produce this effect have a tendency at the same time to weaken the action of the stomach and intestines, and, consequently, to render them a fitter habitation for such unwelcome tenants. And again, the same author, speaking of anthelmintics: “the list of these is almost innumerable; and the very length of the catalogue serves to show us how little we can place a positive dependence, even at the present hour, upon any one of them as a specific.”\*

The great thing, then, in the treatment for worms, is to *restore the general health*. This implies much in detail. The alimentary canal, in particular, should be strengthened. The case should, in short, be managed like one of dyspepsia. The strictest attention must be paid to the diet. The wet-girdle should be worn constantly, night and day, if the weather is not too hot. Sitting-baths, shallow-baths, and, in short, every thing that can be made to act favorably upon the system generally, is useful. Cold clysters are valuable; and if the worms should happen to lie within reach of the water, that is, in the rectum or colon, which is sometimes the case, the effects, if repeated two or three times daily, will be most excellent. Drinking freely of pure, soft water, when the stomach is empty, will also be a valuable means of helping to dislodge the animals from the beds of mucus in

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\* Dr. Elliotson remarks, in reference to the treatment of worms: “Take care that the patient has wholesome food, and put the digestive organs into the best order you can. If this be done, you will frequently find worms disappear without any other means being employed. Without giving any purgative medicine whatever—without doing any thing to expel or destroy worms, you will find, in a great number of cases, where children have become their prey, they will spontaneously cease. Children are far more subject to ascariæ and lumbrici than adults, and a great number of children have them at a particular time; but as puberty arrives, the constitution is less favorable as a habitation for worms, and they cease spontaneously.”

which they often exist. It would be better for all children, as well as adult persons, who are troubled with worms, to subsist wholly on vegetable substances, not even using milk or eggs in the way of food. The diet should, moreover, be spare rather than otherwise, since this would aid in getting rid of the extraneous mucus in such cases.

If one could know of a certainty that he has a tapeworm, and should, at the same time, find that he could not possibly expel it by means of invigorating the general health, water injections, etc., he might be tempted to dose the animal with the hope of getting rid of him. Salt would no doubt be one of the most promising among the drug appliances, because salt in large doses is a great enemy to animal life generally.

Abernethy, who tells us "that very many remedies have been proposed for expelling the tapeworm from the bowels, though none of them can be relied upon as infallible," gives a receipt which was purchased at a large sum by the French government, which is this: Take three drachms of recent made fern-root, powdered; a tablespoonful of honey; mix and take in the morning—a supper of panada having been taken the night before, and the bowels been prepared by an emollient clyster. This is to be followed in two hours by the following bolus: Take twelve grains of calomel, twelve grains of scammony, five grains of gamboge; make a bolus with syrup or mucilage.

"This," says Abernethy, "is indeed a purgative bolus with a vengeance! and we should be very apprehensive of the life of any weakly patient who should take it. We have little doubt, however, that it will kill and dislodge any tapeworm, though the sufferer will run the hazard of inflammation of the bowels from its violent operation."

In such treatment the remedy would be very apt, certainly, to prove worse than the disease.

#### INFLAMMATION OF THE BOWELS—ENTERITIS AND PERITONITIS.

The reader will the better understand these two diseases if they are treated of in connection. *Enteritis* signifies an inflammation of the substance of the intestines, while *peritonitis* means an inflammation of the peritoneal covering of the same parts. One form of this affection—*puerperal peritonitis*—has already been spoken of under the head of puerperal fever, to which the reader is referred.

*Symptoms.*—Dr. Elliotson observes: "In this disease there is sharp, fixed, deep-seated pain in some part of the abdomen, but more particularly about the umbilicus, and there is usually great costiveness. The abdomen after a time becomes tense, and from the severity of the pain, there is anxiety of countenance; the tongue grows white and

the breathing is quickened; nausea and vomiting soon occur, and if complete obstruction take place, we may have vomiting of feces. The patient lies on his back, just as in peritonitis, with his body drawn forward, and his limbs drawn up. He lies quiet, for if he move about he increases the pain. He is often disposed to be restless throughout, but for some reason, can not be; he keeps his body still, but tosses his arms about. The pulse becomes quick, and it is generally small, and sometimes hard. It is generally in cases of this kind that we have what is termed a *wiry* pulse. The tongue at last grows brown, and ultimately (provided things go on from bad to worse) the pain ceases; the patient will often bear pressure; the abdomen swells, and becomes very large; and if we place the fingers across it and strike it, the sound is as hollow as that of a drum. The patient then becomes exceedingly restless and delirious; the pulse becomes irregular, and very rapid; the respiration is also quickened, and death ensues." It should also be remembered, that in some cases when the pain has ceased in this disease, and the physician has left the patient to die, as he supposed, nature has rallied, and recovery taken place.

In *peritonitis*, the symptoms are in some respects similar to those just named, but in others very different; the pain is more diffused, the bowels are not constipated, and nausea and vomiting are not so apt to occur.

*Causes.*—Inflammation of the bowels is caused in a variety of ways, as by cold, moisture, excessive bodily exertion, improper diet, etc. If there is hernia, and the rupture becomes strangulated, the peritoneum and bowels soon inflame if the difficulty is not remedied. Hardened feces accumulating in the bowels, as well as obstructions of any kind, may cause it. The *remote* causes of this kind of inflammation are often to be looked for in the depraved state of the general health. Through proper living, one person may keep his blood so pure that it is almost impossible to make it inflame in any way; while another, who lives badly, and takes no care of himself, is liable to get an inflammation in his abdomen from the slightest cause. Flesh-eaters are much more liable to enteritis and peritonitis than vegetarians, for the good reason that flesh always tends more to inflame the system than vegetable and farinaceous food.

*Treatment.*—Concerning the treatment of enteritis, Dr. Elliotson honestly observes—for it was the best he knew, and what he would practice on himself if he should have the disease—"The first thing which we have to do is to bleed the patient well. We should set him as upright as he can be, and bleed from a large orifice without any mercy. We must, of course, consider the patient's strength; but we should

bleed on till we make a decided impression—till we knock down the pulse, and make him faint. After this has been done, a very large dose of calomel should be exhibited.” It is not strange that patients often die under such treatment; or when they do survive the ordeal, that they are many weeks and even months in regaining any thing like good health. In many cases, too, the bowels can *never* recover their full tone and vigor after such a course.

Several years ago I wrote as follows in regard to the treatment of enteritis. “The disease is to be treated on the general principles of all severe inflammations. Keep down the fever, especially in the bowels; use half-baths or hip-baths, of temperature suited to the strength; wet-sheets and compresses also come well in play; give injections—almost blood warm, again and again—if need be, fifty times in a day; keep the bowels completely ‘soaked;’ give no food till the disease is quelled, and then begin with half a teaspoon portion; if this does well, double or treble the quantity the next time; but be very careful, or trouble will come from the food. Most frightful relapses are often caused in this disease by imperfections in diet.” I have repeatedly treated this disease, and have now no reason to dissent from this advice.

The treatment of *peritonitis* is to be managed very much in the same way. This form of inflammation is perhaps more dangerous than the one just considered. The disease is at least more speedy in its action, the inflammation being of a serous membrane. The reader is here particularly referred to what is said of puerperal peritonitis in this work.

#### DISEASES OF THE LIVER.

The liver is one of the most important of all the viscera. It may be said to be the central organ of the hepatic artery, the vena portæ, the biliary ducts, and the hepatic vein. Its diseases are also complex, and frequently met with.

*Inflammation of the liver*—called, also, *hepatitis*—is known by “pain in the right hypochondrium, shooting to the back and right shoulder, and increased on pressure; difficulty of lying on the *left* side; sometimes jaundice, with cough and general fever;” there are anorexia, nausea, sickness, constipation, and a colorless state of the feces, and the urine is yellow or high colored.

Acute inflammation of the liver usually terminates in resolution, but sometimes in suppuration. This is more apt to be the case in hot climates. The amount of matter thrown off in abscess of the liver is sometimes enormous and it is wonderful to see in what ways

nature operates in getting rid of it. Sometimes she fastens the liver to the walls of the abdomen, and causes the abscess to "point" externally; that is, the matter comes out at the side; sometimes the adhesion takes place at the stomach, the pus being thrown off in this way. More frequently, perhaps, the inflamed liver glues itself fast to the intestines, the abscess sending its matter off through the bowels. In some cases the pus has discharged itself into the gall-bladder. In some instances, also—one of which kind I myself treated several years since—the liver glues itself fast to the diaphragm, the lung at the same time adhering to its (the diaphragm's) upper surface; the abscess then points upward, that is, makes a hole through the diaphragm into the lung, and so sends off the offending matter through the bronchial tubes. In such a case, one who did not understand the disease, would suppose, in consequence of the immense quantities of matter thrown up, that the lungs were giving away rapidly: whereas the lung is as sound as ever, the liver being the whole cause of the trouble. In some cases, though rare, the abscess points at the back, instead of the front or the side, and such cases have been mistaken for *lumbar abscess*, which is a far more serious malady. The matter has also been known to discharge itself with the urine, but by what means has not been pointed out. In some cases of hepatitis, though not often, nature fails in her efforts to expel the matter from the system, the patient sinking with a great closed abscess in the part. In some instances, also, the pus is forced into the cavity of the abdomen, and having no vent, soon destroys life.

The *chronic* form of inflammation of the liver, which also is sometimes attended by dropsy of the abdomen, often follows the *acute*. A chronic *hardening* of the liver is very apt to occur as a result of hepatitis, and it is believed, also, that this condition of the liver not unfrequently takes place without any noticeable inflammation of the part. The liver also wastes in some instances, and it is not unfrequently marked, and, consequently, injured by tight lacing. No organ of the body is probably so susceptible of changes in size and form as this. It is likewise liable to become cancerous and tuberculous, like other viscera; and to degenerate into a fatty mass, called fatty liver. *Calculi of the liver* is one of the most painful of all diseases.\*

*Treatment.*—Acute hepatitis is to be treated actively, like any other inflammation of an important organ. By wet-sheet packs, shallow-

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\* There is one kind of "liver complaint," which in some countries is called "gin liver," and in others "brandy liver," but which might as well be denominated "alcohol liver." It consists in a very formidable hardening and derangement of the organ, and is caused by spirit in whatever form taken.

baths, sitting-bath, compresses, etc., the pain and inflammation should be combated in the most vigorous manner. We should never cease or be satisfied till all pain and fever are completely checked. The abdomen is to be kept cool, and the feet warm. With this injunction it would be quite impossible for any one to do harm with cold water in this disease, so long as the pain and fever are not fully quelled.

In the *chronic* diseases of the liver, the treatment should be such as is best calculated to renovate the general health. "The full warm enemata given night and morning, or every morning," says Dr. Marshall Hall, "is a remedy of great efficacy in all diseases of the liver."

### BILIOUS ATTACK.

Persons now and then suffer from what is popularly termed *bilious attack*. There is intense headache, heavily furred, yellowish-dark tongue, some fever, debility, etc. Dr. Gully supposes a case like this: "A strong man gets bilious, but is obliged to continue his occupation; let him take two or three grains of blue pill, followed by an aperient draught, abstain from animal food twenty-four or forty-eight hours, and he will be well without ceasing from his vocation, and without evil results."

For one, I would not consent to be dosed in this wise; not that I would fear so much the immediate effects of taking for a single attack two or three grains, or four times that amount of blue pill, or even calomel itself; but there is, I contend, a better way—better even for the time, as well as after the attack. Thus, if a man experiences such an attack as Dr. Gully supposes, must attend to his business, and has no time even for a packing-sheet—a thing that need not often happen—*let him cease all eating for one, two, three, or more days if need be*. Let him drink water—pure and soft, if he can get such—in considerable quantities; six, eight, ten, or more tumblers in a day. This process will purify his system sooner, better, and far more effectually and safely than any or all the drugs, nauseous or otherwise, that human art can combine. And if he can add to this process of the *hunger-cure* a few packs, clysters, sitting-baths, half-baths, rubbing-sheets, head-baths—as many, in short, per diem, as the symptoms may demand, in connection with moderate exercise in the open air, he will be made a new man of soon enough. But suppose he goes on taking his blue pills for every little bilious attack; who does not know that the more a man doses the more he may, or rather MUST. Tell us honestly, ye swallowers of blue pills, if this is not so.

And there is yet another piece of advice which I would give in this connection. It is this: people need not become bilious at all; they



have no right to do so; and if they will but pursue the proper modes of life, they are as sure of their pay as the physician who with a right spirit attends the poor. Who ever heard of a person that employed himself industriously, living temperately upon farinaceous and vegetable food, with fruits and milk in moderation, avoiding all grease, and all rich and highly concentrated articles, bathing himself daily, observing all good hygienic rules, and yet get bilious? Such a thing can not be, unless, possibly, in a highly malarious district, of which we are not now supposing. And even in such cases, the patient will be fully rewarded for every good physiological act.

#### JAUNDICE—ICTERUS.

The word *jaundice* signifies *yellow*, being derived from the French word *jaune*, meaning the same thing. In medical language, it is called *icterus*, which was once the name of the golden thrush. It was so called because it was supposed that if a person having the disease looked at that bird he would be cured. In brutes, it is called by the English "the yellows." "In the case of poor people," says Dr. Elliotson, "it is called by the plain terms, 'the yellows;'" but if a lady have the disease, it is termed '*jaundice*.'" The affection happens in connection with other diseases of the liver; but in many cases it appears to be of itself, and distinct. It may occur at all ages; and infants, a few days after birth, often have it, owing, doubtless, to the wrong diet and other habits of the mother during the child-bearing period.

*Symptoms.*—There is yellowness of the skin, eyes, roots of the nails, and the urine. This appearance arises from the liver not performing its functions properly, the bile coursing about the circulation, giving the skin and other parts of the body the peculiar tinge. The color varies considerably in different cases, bordering sometimes upon the olive and the green. There is not only what is termed *yellow* jaundice, but the *black* and the *green*. Sometimes, also, the patients *see* yellow, at least so they assert. The feces are light colored, that is, destitute of bile in many cases, but not all. There is languor, nausea, dead weight at the epigastrium, and often a severe itching of the whole surface.

*Causes.*—Jaundice may be caused by any thing which makes one bilious, or in any way seriously deteriorates the general health.

*Prognosis.*—In those cases where jaundice is merely a symptom of some other affection, the prospect of cure depends upon the nature of the original complaint. Some *die* of the disease, while others care very little about it. I should regard black and green jaundice as de-

noting danger. Some assert that persons almost never recover from these forms of the disease; but I apprehend water-treatment would make a material difference in the result.

*Treatment.*—If the jaundice is merely a symptom of some other disease, it is of course managed according to the original malady. In all cases, also, it is to be remarked, the wet-sheet pack is a most valuable *poultice*; nothing will correct the skin at all like it. Wet-sheet rubbing, shallow-baths, clysters, and, in short, the whole of the hydropathic enginery, which is so admirably calculated to *purify* and invigorate the system, can be brought to bear in this disease. The *hunger-cure* is also highly favorable in it.

The jaundice of the new-born infant is to be treated on the same general plan. It is a new thing in medical practice to wrap young infants in so horrible a thing as a wet-sheet! We take a wet napkin or towel, or some such article of sufficient size, and envelop the little patient in such a way as to make it neither too warm nor cold, and let it sleep a half hour or hour, two or three times a day. This, with a little bathing in connection, soon takes away all jaundice, as well as other troubles, especially if the mother lives in such a way as to afford it the proper quality of milk.

#### DISEASES OF THE PANCREAS AND SPLEEN.

The pancreas is liable to nearly the same affections as the liver; "but the symptoms," says an author of celebrity, "are unknown, and to this day the diseases of the pancreas are of as little moment in a therapeutical point of view as they are rare in their occurrence."

The *diseases of the spleen* are also exceedingly obscure, although we know that enlargement of the organ often follows ague, as managed by drug-treatment. It is to be treated on general principles.

#### DIARRHEA—LOOSENESS.

The alimentary canal, which presents an internal surface of thirteen to fifteen square feet, may, in an important sense, be considered as a great *sewer* of the living body. In a state of the best health, a large proportion of the effete matter in the system is constantly carried off through this channel; and in disease, the mucous membrane of the alimentary canal often becomes the means of exit for morbid and other matters, which if left in the system would soon induce severe illness and death.

For the sake of distinction, several varieties of diarrhea are mentioned by authors. Thus Dr. Good speaks of *feculent looseness*—*diarrhea fusa*—in which the feces are of common quantity, but immoderately

loose and copious; *bilious looseness—diarrhea biliosa*—in which they are loose and of a bright yellow color; *mucus looseness—diarrhea mucosa*—in which the dejections consist of, or contain a copious discharge of, mucus; *white looseness—diarrhea alba*—in which the discharges are milky, or resembling in their appearance a mixture of water and lime, with a frothy scum; *lientery—diarrhea lenteria*—in which they consist of the aliment passed rapidly, and with little change; *serous looseness—diarrhea serosa*—in which they are almost entirely liquid and limpid; and *tubular looseness—diarrhea tubularis*—in which they consist more or less of membrane-like tubes, whitish, viscous, and indorous. This latter form of diarrhea is a very uncommon disease.

*Treatment.*—The medical management of a diarrhea is a very simple matter, when once it is well understood. In all common cases, little is needed but reasonable care in the habits generally, avoidance equally of indolence and over-exertion, and particularly care in regard to food. Losing one, two, or three meals in succession is often one of the best things, because the looseness is only the salutary effort of nature to rid herself of the superabundance of aliment that has been taken. Moderate bathing, tepid clysters, sitting-baths, rubbing-sheets, etc., are useful, because they aid nature and support the strength. Vegetarian diet is especially favorable in such cases.

There is one almost universal error, even among hydropathists, which I must here particularly notice. It is this: when a looseness is upon a person, he thinks he must use boiled milk with fine flour food, and such articles generally as are known to constipate in health. But this is a mistake, for *experience* teaches that when food is needed at all, articles of an aperient nature rather should be taken. We know that grapes, peaches, blackberries, and other good and perfectly ripened fruits are good in loosenesses of the bowels, and that whole communities, as it were, are cured in this way. In short, those forms of food, according to the season and the place, which are best in health or costiveness even, are also best in diarrhea. Dieting in this way, a person not only recovers sooner, but is much less apt to have a relapse. If one, therefore, who has not been accustomed to brown bread, fruit, and the like, wishes to cure his looseness in the best possible manner, he must commence at once—carefully of course, for he should be careful in regard to all nutriment—with those articles of an aperient nature—in short, such as are best calculated to establish the general health. I wish it understood that I speak from *experience* in these things.

*Chronic diarrhea* is often a troublesome matter to deal with, and drug-medication in most cases of the kind is far worse than the disease. A number of cases of this kind I have cured in this city. One I now

call to mind, of a boy ten or eleven years old, of scrofulous diathesis, who had the disease from the first week of his life onward. He was *pot-bellied* and emaciated, as is common in such cases. He was put at once upon a correct vegetarian plan of diet, for he had been kept for years principally on fine crackers and milk—and at the same time put through a course of hydropathic treatment; wet-packs, rubbing-sheets, shallow-baths, wet-girdle, etc., such as was calculated to restore the general health. The boy was completely cured in a few months, and is now a fine, healthy, and intellectual young man at college. The other case was that of a delicate young man, who had had chronic diarrhea, and there was reason to fear ulceration of the bowels for two years after dysentery—and ulceration of this kind is never curable by drug-treatment—this young man, too, was completely cured in a few months, and now for about two years he has been as fleshy and well as ever, whereas he had become very thin and weak. Both of these patients had been dieted most thoroughly, upon the plan recommended by the best advisers of the old-schools in this city, and both had been drugged, allopathically and homeopathically, till it was evident drug-ging was of no use. Such cases, I say—and I have cured numbers of them—speak volumes in favor of water-treatment, and the plan of diet I have recommended.

#### CHOLERA.

*Cholera* signifies “any complaint in which the prominent characters are simultaneous and repeated vomiting and purging, with painful spasm of the stomach and bowels, and occasional cramps of the external muscles.” There are three varieties of the disease—*cholera morbus*, *cholera infantum*, and *epidemic cholera*, each of which will be separately considered.

The *symptoms* of cholera morbus are, violent abdominal pains, a sensation of severe sinking, bilious vomiting and purging, coldness of the surface usually, small pulse, often severe cramps of the stomach, bowels, and extremities, and sometimes convulsions.

*Pathological Characters.*—Dr. Marshall Hall observes, “There is frequently not the slightest trace of morbid change of structure on examination after death. In protracted cases, red, brown, or black patches, and even gangrenous points have been found in some parts of the intestines, and the liver has been much congested.”

*Causes.*—Hot weather is laid down in medical works as one of the causes of cholera morbus; but this of itself is hardly sufficient. Marsh miasmata, foul city air, drunkenness and debauchery, and bad diet are manifestly the more prominent sources of the disease.

*Treatment.*—This is to be conducted in the same manner as that for epidemic or spasmodic cholera, according to the symptoms of the case.

*Cholera infantum*, a disease which appears to be almost wholly unknown in the old country, is one of the most fatal and common of all affections among children in the United States, more especially in the larger towns and cities, although it is often seen in the country also. It prevails mostly during the hot season, and in the hottest parts of the Union. The *watery gripes* of England is said to bear a strong resemblance to this disease, but is by no means so common or fatal.

*Symptoms.*—The chief of these are, vomiting and purging of green or yellow matter, slime, and attended with pain or uneasiness, swelling of the abdomen, and more or less fever generally. This last symptom distinguishes the disease from cholera in adults. The attacks are very variable both as to suddenness and general characters. They may prove fatal in a few hours or days, as the case may be.

*Causes.*—Impure air of a high temperature is manifestly one of the most potent of all exciting causes of this disease, for it is only during the hot season that it mostly prevails. As Dr. Parrish, of Philadelphia, judiciously observes: "It commences with the hot weather, increases and becomes more fatal with the rise of the thermometer, and declines with the cool weather in autumn. During its continuance, it may be observed to vary with every prominent change of temperature. A few very hot days in succession in the month of June are sufficient to call it into action; and during the length of its prevalence, a spell of cold weather will diminish, if not suppress it." "Let any one," continues this author, "take a walk in a summer morning through the thickly built lanes and alleys of Philadelphia, and he will be struck with the appearance of the children, reclining their heads, as if exhausted, upon the breasts of their mothers, with a pale and languid countenance, a cool and clammy skin, a shrunk neck, and other signs of debility, arising from their confinement during the night in close and hot apartments."

Dietetic improprieties, both in child and mother, have also much to do with this fearful disease. I have no doubt that sugar and sweet articles generally, which are so cheap and abundant in this country, and which I have so often in this and other volumes spoken against, are much concerned in the production of all bowel complaints.

The *treatment* of cholera infantum is so similar to that of dysentery and cholera generally, that I refer the reader to what I shall say on those points. Study dysentery especially. No parent should undertake to treat so fatal a disease without knowing well what he is about. But I would trust to good nursing alone, and a very little water-treat-

ment, administered by any woman, young or old, of good courage and common sense, than the best doctor in Christendom who depends upon drugs, allopathic, botanic, or homeopathic, for the cure of this or any similar disease. But if you live in the poisoned air of a great, hot, crowded city, beware when your child is attacked with a bowel complaint! If its life is worth more than money, lose no time in taking it to a healthy country place. Would that all were able to follow this advice, which, by-the-by, *all* physicians agree in.

The *epidemic, Asiatic, or spasmodic cholera* is now almost too well known to need any detailed description. It is one of the most terrible and fatal diseases ever known to man. It occurs both sporadically and epidemically, but principally in the latter way. It has long been known as a most formidable disease in the hot climate of India; it has also proved equally fatal, or nearly so, in the winter season of Russia. "Not many years ago," observes a late writer, "it appears to have made the entire circuit of the globe, and subsequently to have disappeared without cause."

**Causes.**—The original cause of this disease has not been discovered. We know, however, that it rages mostly in large cities, and wherever the inhabitants are the most unhealthy. The drunken, debauched, and the licentious are the most frequent victims of the disease. Vegetarians are almost never attacked with cholera, even when residing in an unhealthy city.

**Symptoms.**—Dr. Marshall Hall observes, "The *early* symptoms are mere diarrhea, perhaps unattended by pain or spasm; the evacuations are copious, liquid, almost inodorous, and usually compared in appearance to rice-water. *Afterward*, the same sort of fluid is rejected by vomiting and passed by stool in amazing quantities, variously attended by pain, anxiety, and cramps, but speedily followed by collapse and sinking, the countenance being livid, cold, and clammy, the arms livid, cold, clammy, and pulseless, the voice husky; there is complete suppression of the urine. In the worst cases, there are early blueness, pallor, and collapse of the countenance, loss of voice, loss of pulse, a cold, clammy, and livid state of the extremities, speedy sinking or asphyxia." Death generally takes place in from six to thirty-six hours, the patient retaining his faculties to the last.

**Terminations.**—The disease ends in death, in recovery, in prolonged irritation of the stomach and bowels, or in secondary fever of a typhoid character, which is very apt to carry the patient off. About one half of all attacked die under ordinary treatment. The young are more apt to recover than those advanced in life.

When recovery is about to take place, reaction gradually comes on;

the cramps cease ; the vomitings and dejections grow yellow, that is, contain bile ; urine is secreted ; the animal heat returns, which may have been as low as 70° Fahr. ; the voice and pulse improve, and the countenance grows more natural. But when matters go on from bad to worse, the opposite of these symptoms takes place ; the patient grows worse in all respects.

*Pathology.*—After death there is often not the slightest change of structure observable in the stomach and alimentary canal ; in protracted cases, there may be red, brown, or black patches, and even gangrenous points, the liver may be much congested, the gall-bladder is filled with bile, the bladder empty and collapsed.

*Treatment.*—In no disease has the skill of man been more faithfully tried than in attempts to cure this terrible disease ; and the opportunities have been abundant and wide-spread over the world. The result, so far as drug-treatment is concerned, is summed up in a few words. In the language of a late able writer, “this disease has totally baffled the curative efforts of the medical profession in Europe and America, as the records of its mortality abundantly show. No one can think otherwise who has seen much of the disease, unless in its most favorable and imperfect forms.” And another : “There is no disease for which such a variety of remedies has been proposed, or in which all remedies so completely fail, as the epidemic cholera.”\*

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\* Dr. Mackintosh says, that “no better evidence can be offered of the ignorance of the profession generally, as to the nature and seat of any disease, than the number and variety of remedies that have been confidently recommended for its cure,” and that this was never better exemplified than in the cholera. Without pretending to give all the remedies that were recommended for this disease, he cites the following catalogue, made out at the time it prevailed in the city of Edinburgh :

“Venesection (bleeding), cupping, dry-cupping ; arteriotomy (blood-letting from the arteries) ; emetics of mustard, ipecacuanha, antimony, and sulphate of copper ; calomel, colocyath, singly and combined ; castor-oil, croton oil, jalap, opium, calomel and opium, fluid mercury, mercurial frictions, opium combined with antimony, opiate confection, colchicum, cajuput oil, peppermint oil, capsicum, charcoal, camphor variously combined, ether, mint tea, nitric spirits of ether, magnesia, milk, milk and magnesia combined, lime-water, alkalies, aromatic spirits of ammonia, Dover's powder, oxide of bismuth ; various balsams ; acetate of lead, nitrous acid, soda water, cold water *AD LIBITUM*, water prohibited, effervescing draughts, strychnia ; various rubefacients in the shape of frictions, sinapisms, embrocations various contra-irritants, as blisters, antimonial ointment, moxas, actual cantery, bastinadoing the feet ! cutting the throat ! suffocating under a feather bed ! Injections of oxygen gas into the bowels ! the application of heat in the shape of warm-bath, fomentations, dry heat ; the application of cold ; galvanism ; injections of beef tea, starch, and opium, chamomile tea, hot water, cold water, strong solution of fusible potash, tobacco, port wine, alcohol, sulphate of copper, acetate of lead, etc. ; Stephens' drug ; saline injections into the veins.”

Elsewhere Dr. Mackintosh says, “In the Drummond-street (Edinburgh) Hospital, we fairly tried all the remedies recommended, but observed no advantage from a large majority of them.”

But Water-cure, so far as it has been tested, has met with better success.

The method of treatment adopted by the Persians, as given by Scoutetten, is a good one. "The treatment commenced at the moment of the attack; from the first symptoms the patients were undressed, even in the streets, and then cold affusions were applied. The extremities, the trunk, and particularly the chest and the shoulders, were rubbed and shampooed, and the contracted limbs were extended.

"These manipulations were performed for two or three hours by a dozen persons, on the same individual, while the affusion of cold water was continued. Having come home he went to bed, and a warm tea was given him to produce perspiration; if this appeared, the patient was regarded as out of danger. A strict regimen was, however, enjoined for nine days; only light soups of rice and of tender meats were allowed, and he was recommended to take moderate exercise in the open air daily. Arrangements were made by the authorities so well, that vessels of water were placed at the corners of streets, and even on the roads; no one passed the night alone; when a person was attacked with the cholera in the street, all the bystanders attended to him; every one ran to him with vessels of water in their hands, and when one was tired of rubbing another took his place. If a person was taken sick at his house, assistance was asked and immediately obtained."

Priessnitz's treatment was, in effect, very similar to the one above described. In 1831 there was a good deal of the disease about Graefenberg, and he was called to treat upward of twenty cases, all of which he cured. He commenced in the earliest stages of the disease and treated the patients as follows: They were subjected to a rubbing with a wet linen sheet, in which the whole body was wrapped, and all the parts of the surface were energetically rubbed with it—that is, over the sheet. To counteract the violent fits of nausea, much water was drank, so as to produce vomiting; after the rubbing, a cold-water injection and a cold hip-bath were employed, to counteract the diarrhea; and while undergoing constant rubbing of the surface, the patients remained in the water till the sickness and diarrhea subsided. After the hip-bath and rubbing, a wet bandage or girdle was placed around the body, upon which the patients went to bed; after sleeping they were again put into a cold-bath. Cold drinks and cold food only were taken during the convalescence; and by these means the disease was overcome.

This appears like a very simple treatment; but it may be made a most energetic one, as every physician acquainted with such applica-



tions can easily see. The dripping-sheet, with the brisk rubbing upon its surface, is, as I have before said, a powerful means of relieving spasms, arising from whatever cause. The dry-rubbing, which is not a tenth part as good as the wet, was found in Paris sufficient to render calm and quiet the poor sufferers, when the terrible spasms were upon them. The water-drinking and vomiting in nausea cleanses the stomach, produces a tonic effect upon its internal surface, and thus forestalls the vomiting in cholera. It helps, moreover, to cleanse the bowels and prevent the diarrhea. The deep, cold hip-bath (for it is such that Priessnitz uses), has a very powerful effect in constricting the opening capillaries of the mucous membrane of the stomach and alimentary canal generally, and in arresting the vomiting and discharges from the bowels. Each and all of these applications, if energetically persevered in, tend most powerfully to keep down the inordinate burning and thirst.

The Persian treatment, too, is admirably calculated to quell the spasms and check the vomiting and discharges, in short, the disease. It is of the greatest importance that the treatment be commenced *at the very beginning of the attack*. In no disease is this more necessary; if every patient could, from the first of the vomiting and discharges, be treated with energy according to either of the plans above stated, I do not see how it would be possible for any one to die of the disease. A drunkard, with "brandy liver," it is true, might be carried off with a low fever afterward; but I am of the opinion that the spasms, vomiting, and discharges could in all cases be cured if taken at the earliest moment. I myself treated about fifty cases of cholera in and about the city of New York in 1849, and I could not be said to lose a single case. One old lady died of a slow fever afterward, but not fully under my care. The choleric symptoms, although very severe, were readily subdued in her case. Others, however, who practiced the treatment were not so successful, losing almost every case, from the fact, probably, that they were called too late.

The profession generally in this country came to the conclusion that it is best to allow the cholera patient all the ice and ice-water he desired. In no disease is the thirst so great, probably, patients having sometimes drank the urine from a chamber-vessel in their frenzy for drink. I myself preferred in the latter part of my experience in the disease to give tepid, or even warm water, rather than cold. It appeared to check the vomiting sooner. The same also was true of clysters. My plan was, when the patient felt that vomiting was about to come on, to aid it by giving largely of water to drink. The same method also was followed in regard to clysters. Both these and the

drinking always prolonged the periods. At the same time cold water was used in the most liberal manner externally.

The remarks concerning diet, and the use of fruits as preventive and curative measures, made under the head of "Dysentery," are applicable in this place, and to which the reader is referred.

#### DYSENTERY—BLOODY FLUX.

The word "*dysentery*" is of Greek origin, signifying "an intestine." It is known also by the name of "*flux*" and "*bloody flux*." There is also what is called "*dysenteria alba*," or white dysentery. In this latter affection, there are mucous and other discharges from the bowels; and the pain and bearing down (tormina and tenesmus) are the same as in the common form of the malady.

Dysentery rages sometimes as an epidemic. It is then when it exhibits its greatest malignity. When it happens sporadically, that is, in a scattering or casual way, it is far milder, and more easily managed.

*Symptoms.*—The disease often commences like a common diarrhea, in some cases with rigors, followed by fever. In others, the local symptoms are first perceived. "There are costiveness, flatulence, severe griping pains, fixed pain, with great tenderness in the hypogastrium, frequent inclination to go to stool, with a scanty discharge of indurated feces, of pure mucus, of mucus mixed with blood, of pure unmixed blood, of pus, of a putrid sanies, and sometimes of films of false membrane; tenesmus, dysuria, cramps in the limbs. As the disease advances, it produces great emaciation and debility, a quick and weak pulse, a sense of burning heat, and intolerable bearing down of the rectum, hiccough; and the disease often terminates fatally with symptoms of collapse." Such are the symptoms and course of dysentery, as seen in allopathic treatment.

*Terminations.*—In health; in a chronic form of the disease; in some other disease; in death.

*Prognosis.*—This is favorable when the discharges become more yellow and natural, and of less frequency. A gentle perspiration is a good omen. It is unfavorable when the tormina and tenesmus grow more and more severe, when there is vomiting, hiccough, difficult deglutition, cold extremities, convulsions, cold and partial sweats, delirium, sudden cessation of pain, great sinking, great foulness and offensiveness of the discharges, voided involuntarily, intermitting pulse.

*Anatomical Characters*—In fatal cases there is ulceration of the large intestines, and enlargement of the glands.

*Causes.*—The real cause of dysentery would seem to be a specific

contagion. A high temperature favors its development, although the disease sometimes occurs in the cold seasons. Cold and wet often induce attacks of dysentery when it is epidemic, but by far the most frequent exciting cause is to be found in dietetic abuses. A consistent vegetarian never gets dysentery. Foul water also often excites the disease. "Dr. M. Barry," as quoted by Dr. Cheyne, "affirms that the troops were frequently liable to dysentery while they occupied the old barracks at Cork; but he has heard that it has been of rare occurrence in the new barracks. Several years ago, when the disease raged violently in the old barracks (now the depot for convicts), the care of the sick was, in the absence of the regimental surgeon, intrusted to the late Mr. Bell, surgeon, in Cork. At the period in question, the troops were supplied with water from the river Lee, which, in passing through the city, is rendered unfit for drinking, by the influx of the contents of the sewers from the houses, and likewise is brackish from the tide, which ascends into its channels. Mr. Bell, suspecting that the water might have caused the dysentery, upon assuming the care of the sick, had a number of water carts engaged to bring water for the troops from a spring called the Lady's Well, at the same time that they were no longer permitted to drink the water from the river. From this simple but judicious arrangement the dysentery very shortly disappeared among the troops."

*Prevention.*—Would that I could impress indelibly upon the mind of every parent the immense importance of the greatest care and circumspection in diet, of regularity in meals, sleeping, and all voluntary habits; of cleanliness of person, clothing, and apartments; of daily bathing, of moderate but regular and daily exercise in the open air, of the regulation of the passions, of the avoidance of excesses in every thing. These remarks hold good, both as regards the old and the care of the young. In reference to bowel complaints, an ounce of prevention is worth vastly more than a pound of cure.

*Treatment.*—Dysentery is primarily an inflammation of the lower bowel, which, if allowed to go on, soon spreads itself to the other portions of the intestinal canal, ending often in ulceration, gangrene, and death. The true principle of treatment, therefore, must be exceedingly plain. If I were to give in a few words the great golden rule, as I may say, for treating dysentery, as well as cholera morbus and bowel complaints generally, it would be; **KEEP THE BOWELS COOL, THE HEAD COOL, AND THE EXTREMITIES WARM.** If all this were done faithfully in all cases FROM THE FIRST, few, very few, would ever die of such attacks. But all of this implies good judgment, skill, and perseverance. In dysentery, for example, a sleepy parent allows the disease

to progress for half or the whole of a sultry night, and in the morning it is too late. The fatal work is done. I repeat, such attacks must be taken AT THE VERY FIRST.\*

The *cold hip-bath* is an invaluable remedy in this complaint. If there is in the whole range of human diseases one instance wherein a remedial agent can be made to act in a manner most agreeably efficacious in subduing pain, it is the cold sitting-bath here. In the tormina and tenesmus of dysentery, a child may be writhing in agony a great portion of the time; opiates, and injections, and all other remedies fail in bringing relief; we sit or hold this child in a tub of cold water, and directly the pain ceases. We use the remedy sufficiently often, the water being of proper temperature, and we are certain of securing our object, so far as the relieving of pain is concerned. Whether the patient can LIVE, is another question; but if death, even, must be the result in any given case, it is certainly very desirable that we make this death as easy as may be. This every *parent* can well appreciate.

Let this bath be used thus: a common wooden tub is sufficient, the size being suited somewhat to the patient's age. It is better to elevate the back of the tub a few inches by placing under it a brick or a block of wood. If the tub is of pretty good depth, all the better, as we wish to have the water come as high upon the abdomen as may be; but if the tub is shallow, the water can be poured higher upon the body by means of a cup; or a sponge or towel dipped frequently in water may be used. MAKE THOROUGH WORK IN COOLING THE BOWELS, AND THEN THE PAIN WILL CEASE. If it is a young, feeble child, let two persons hold it, one to support the head and upper part of the body, the other, the feet outside of the tub. I would not object, in some cases, to hav-

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\* In another work—"Management and Diseases of Children"—speaking of the antiphlogistic plan of treatment, or, in other words, keeping down all heat of the system in this disease, the following remarks were made: "Shall we act upon the plan of the most eminent practitioners of Cullen's time, who regarded that the disease is to be cured most effectually by purging, assiduously employed? Or shall we regard Cullen's own opinions, that 'the most gentle laxatives are usually sufficient; and as they must be frequently repeated, the most gentle are the most safe: the more especially as an inflammatory state so frequently accompanies the disease?' Or, if this do not succeed, shall we bleed the patient freely, as recommended by such authorities as Sydenham, Elliotson, Dewees, Mackintosh, Watson, and others? Or shall we give heavy doses of calomel at intervals, so as to get the mouth sore (salivated) as soon as possible, as recommended by Elliotson? Or shall we use tartar emetic, large and repeated doses of opium, leeches, blisters, and, in short, all of the most horrible enginery of the old school? If I have studied the human system and the healing art to any purpose; if I have practiced among the sick with any thing like satisfactory success, I affirm that there is a better mode than all these, more powerful and more efficient, and at the same time incomparably more safe than any or all of these combined. The remedy is, moreover, as simple, cheap, and universal as efficacious; it is precisely such a remedy as we would naturally expect a good, wise, and benevolent Creator to place within the reach of all His creatures 's, in short, COLD WATER."

ing the feet in warm water at the same time. I am not certain but this would be good in all cases. I should not, at any rate, be afraid of it, if the water were not used hot. The feet also may be rubbed with the dry, warm hand, or warm cloths; or other moderately warm applications may be made.

As to the use of *wet compresses*, some in the old practice have recommended warm fomentations of bran, wet flannels, etc., and others have used these applications cold. It is probably well to alternate occasionally with the two, but they should not be used hot. Each will act better in consequence of these changes. But I would depend mostly upon the cold applications externally. Warmth is also good often, I will remark, to relieve pain; but we must recollect that artificial heat is, as a general fact, debilitating to the system, and that we must therefore use it with extreme caution in the treatment of disease. Patients with dysentery should wear the wet-girdle a large share of the time until they become thoroughly well and strong; but it should be often re-wet, in hot weather, otherwise it would be very likely to do more harm than good by overheating the system.

If there be great soreness of the anus, or external opening of the lower bowel, a heavy, wet compress should be placed upon the part. We wet a heavy diaper and apply it as for a young infant. This may be double or treble, according to the necessity of the case. This accomplishes much in relieving and preventing the soreness alluded to—the excruciating torture so often attending the disease.\*

As to the use of injections and drinks, I do not believe it best to use the water very cold in bowel complaints of any kind. True, some in the old-school have succeeded admirably in dysentery by relying mainly upon small pieces of ice frequently swallowed. No doubt this is a much better and safer remedy than calomel, opium, and other drugs of a poisonous kind. *Water-soaking* the system internally, so to say, has a great effect in subduing inflammation and pain. It also dilutes morbid matters, rendering them thus less powerful for harm, so that the healing may go on much more rapidly than would otherwise be the case. I would give the child all the liquid he desires. I would even encourage him to take more rather than less; and the best liquid of all, for this purpose, doubtless, is pure soft water—the purer and softer the better. People may everywhere have pure soft

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\* My practice usually in dysentery has been to give clysters as often as the desire to evacuate the bowels takes place. But if there is too great soreness, or if it is a child, and the patient seems to object much to the enema it is not repeated so often. Clysters always prolong the periods between the evacuations. They are a valuable aid in dysentery, although we can do well without them.

water if they will only be at the expense (which is, on the whole, a moderate one) of catching the water as it comes from the clouds. But use even hard water, rather than any other drink. Boiling the water if it is hard, improves it somewhat.

*Duration.*—Dysentery, like all other diseases, varies much in its intensity. It may be the slightest thing imaginable, or, on the other hand, one of the most violent attacks of disease that can be conceived of. An apparently healthy child may be all at once cut down—brought to death's door, as it were, in a single day; but generally the attack comes on more gradually; it may remain for many days in spite of all treatment. In some cases the bowels heal much sooner than in others, and as long as life remains there is hope.

*Diet.*—All writers of distinction agree that animal food should be avoided in this disease. "Radical cures," says Dr. Morton, "have been derived from a persistence in a diet of gum-water and the farinaceous articles, conjoined with absolute rest." "The patient should be kept without food," says Dr. Elliotson; "the stomach should be allowed as much repose as possible; he should be kept very low." The celebrated Dr. Watson, of London, remarks, "the food in dysentery should be farinaceous and simple." "Vegetable nourishment and fruits, especially in the beginning, may be given," says Dr. Cullen. Grapes are preferred by Zimmerman. "Fruits are not only useful in the cure," says Dr. Hosack, "but in the prevention of the disease, not only as antiseptics, but from their effect in quickening the biliary secretions." "All writers on this subject," this author further observes, "agree on the bad effects of animal food in dysentery."

*Fruit a Preventive.*—Most persons are afraid of fruits in times of prevailing dysentery. I was told by a very intelligent lawyer of Morristown, New Jersey, last year, that the people of that region ate freely of peaches during their whole season. Morristown is famous for its fine air, good water, and fruits. Just before the time of peaches, bowel complaints were frequent. But very soon after the fruit season commenced, bowel complaints ceased.

For a number of years I had been in the habit of keeping patients suffering from dysentery, in the autumn, on grapes during the cure. The juice only of the fruit was swallowed, and always apparently with the best results. Looking over the authorities on the subject of dysentery, I found the following in Dr. Elliotson's great work on the "Practice of Medicine:—

"It has been supposed that fruit produces this disease; but unless the fruit be bad there is no reason to suppose that this is the case. Of course, bad fruit, coming under the head of bad food, might produce

it; but the mere circumstance of eating fruit at the time when nature provides it for us, does not give rise to the disease. On the contrary, there are on record many cases of fruit having proved exceedingly beneficial. It is mentioned by Zimmerman, in his work on 'Experience,' that in 1751 a whole regiment in the south of France was nearly destroyed by dysentery. The officers purchased the entire crop of several acres of vineyard for the regiment, and not one man died from that time, nor was one more attacked. Tissot, a French writer, also mentions that eleven persons in one house were attacked with dysentery. Nine of them ate fruit and recovered; but the grandmother and one darling little grandchild had wine and spices instead, as being more comfortable; and both died. It was observed in Holland, that the worst flux that was ever known in the army occurred at the end of July, when there is no fruit but strawberries, of which the men never partook; and that the disease ceased entirely when October arrived, and brought the grapes, of which the men ate very heartily."

But it should be remarked, that even good fruit will sometimes *appear* to cause dysentery. So, indeed, the best of food might do the same under unfavorable circumstances. Nourishment is often taken when it is not needed, and at such times the most healthful articles will cause more or less harm. People, too, are very apt to attribute such attacks to the last article which they had eaten. The last food taken before the attack seems always to disagree; but it is not to be inferred from this that the disease is brought on by the food. The true cause is often to be looked for far back of the time when the last food had been taken. The condition of the general health must, in all such cases, be taken into account.

It is proper here also to remark, that during convalescence in dysentery, fruit as well as all other kinds of nutriment must be given with extreme caution. A little too much of the best of articles will sometimes cause a great amount of mischief, and lead, perhaps, to inevitable death. I will also here add, that whatever food is found safe and useful in so dangerous a disease as dysentery, will also be found equally so in other diseases of the bowels. In diarrhea, cholera morbus, cholera infantum, and malignant cholera, the same great rules as those relating to dysentery should guide us in the selection of food. A rule for one is a rule for all—the *quantity* of nutriment being carefully regulated according to the nature of the case.

Good apples, and good and perfectly ripe fruit, fresh from the trees or vines, may be used in any case of bowel complaint. If the case be a bad one, it may be necessary for the patient to fast some days from all food. But when nourishment is needed, the juice of perfectly ripe

fruit, in proper quantity, will always, I think, be found salutary and good. These remarks refer to those cases where the patient is old enough to take food other than milk.\*

*Fresh Air and Clothing.*—Whether dysentery is capable of being propagated by means of the excrementitious discharges, as many believe, or not, it is highly important that every means be taken for the thorough ventilation and purification of the air of the patient's room. Let the discharges be removed as quickly as possible from the chamber of the sick. Some have been so particular in this matter as to insist that the alviri discharges should not be thrown into the common privy, but buried in the earth, as was the custom in Levitical times. The clothing of the patient should be frequently changed. The same particular attention should also be paid to the bedding. If the patient is obliged to remain in the recumbent posture, let the bedding be changed, at the very least, as often as morning and evening; and three or four times a day would be better. Patients always feel better and more comfortable, when they go to a fresh, clean, and well-aired bed. It is not strictly necessary that the clothing be washed at every change; but it should be well aired either out of doors or before a fire in another room. These may appear trifling matters to the uninitiated; but it should be remembered that in the treatment of all diseases, it is a combination of many small matters which constitutes the great whole.

*Exercise.*—In this, as in all other diseases, the patient should sit or be held up as much of the time as may be, without inducing too great fatigue. Little and often should be the rule. But mischief is not unfrequently done in this disease by doing too much at a time.

Riding will be found peculiarly appropriate in dysentery. This exercise seems almost too trifling a matter to do much good; but when we take into consideration the influence of the constant though gradual motion attendant on this mode of locomotion, the tonic effects of pure fresh air, and the wonderful stimulation of light, we need not be at a loss to account for the manifest improvement which occurs often from simply taking a ride.

#### OBSTRUCTIONS OF THE BOWELS.

In all cases of obstructed bowels, it should be borne in mind that there are various mechanical or structural causes as well as functional disorders that are liable to hinder the natural action of these parts.

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\* For dysentery, the most common remedy among the Persians is sour milk mixed with rice previously boiled in water till it has become quite dry. Sour milk bears some relation to fruit.



The most frequent mechanical obstruction of the bowels is that of hardened or impacted feces, the case in the beginning having been simply one of neglected constipation. Dr. O'Beirne, a distinguished writer on this subject, mentions the history of a patient who had been without any evacuation for nearly six months, and who was yet relieved of the impacted mass by a stimulant injection thrown high into the rectum. It is very important to avoid such obstructions, because they always harm the constitution more or less, and in some cases become absolutely dangerous.

Another cause of obstructed bowels is the formation of solid concretions in the parts. These occur most commonly in the cæcum, colon, or rectum. Dr. Wood gives some excellent advice on this subject. He observes: "Insoluble substances taken largely and frequently as medicines sometimes conerete in the bowels, held together by a cement of animal matter or calcareous salt, and frequently mixed with indigestible portions of substances used as food. Cases are on record of serious obstruction proceeding from the daily and continual use of chalk, sulphur, magnesia, and sub-carbonate of iron. The stones of various fruits, especially of cherries and plums, swallowed along with the pulpy matter, under the impression that they assist digestion, frequently form conerctions in the bowels, which have, in some instances, given rise to fatal obstruction. Sometimes solid masses are formed out of the secretions poured into the intestine, especially from the bile, and these concretions, upon examination, have been occasionally found to have as a nucleus some insoluble substance accidentally swallowed. They are not generally numerous, seldom exceeding two or three in number, but in some instances many have been found, and of various sizes, from a few lines to two inches or more in diameter."

*Intussusception*, or *invagination* of the bowel, is a not unfrequent cause of most painful obstruction and inflammation of some part of the alimentary canal, an affection which we suppose is seldom cured. It is possible, and some say highly probable, that intussusception often takes place in colic or spasms of the intestines, but remedies itself without serious effects by the spontaneous movements of the bowels. In this affection, it will be understood, a higher portion of the bowel descends into a lower, such, for example, as the ileum into the colon. The difficulty may happen in almost any part of the bowels from the duodenum downward, but it occurs most frequently at the union of the smaller with the larger intestine. The displacement, if not soon relieved, must cause an inflammation, that may end in mortification and death.

*Twisting of the bowel* is likewise now and then a cause of obstruction

of the bowels. The Hon. Mr. Legare, it will be remembered, died in the greatest agonies in this way. A fold or loup of intestine turns upon itself, making in some cases two revolutions, and completely obstructing the passage of feces. It is most apt to occur among the convolutions of the small intestines or at the sigmoid flexure. It is said to have been caused by external violence in some cases. In its severe forms it is supposed to be irremediable, but in slighter cases it probably sometimes cures itself. We can not detect the difficulty with any degree of certainty before death.

*Tumors.*—The bowels in some instances become obstructed by morbid growths of this kind, and which in the end prove fatal by completely closing the passage.

*Stricture.*—There is sometimes a spasmodic affection of this kind in other cases the coats of the bowel become thickened so as to produce troublesome obstruction, and in some instances complete closure and consequently death. *Adhesions of the peritoneal coat* of the bowels, arising from inflammation, may produce bands upon some part of the small intestine, in such a way as to cause fatal obstruction. *Organized bands* across the bowel have also been found, causing the same effect.

*Treatment.*—In case of impacted feces, frequent injections of warm or tepid water is the best mode of *soaking out* the offending mass. Water, if persevered in, is even more effectual than drug enemata; it leaves the bowels in a much better state, and much less liable to future constipation. If there are concretions within reach in the lower bowel, they can sometimes be scooped out at once with the finger or a spoon-handle. Clysters of pure water, often repeated, aid the bowels in throwing off masses of this kind. In intussusception it is a sorry method to drug the stomach with cathartics, for by their action downward they tend inevitably to make the evil worse. Using very largely of clysters, and at the same time very cold applications to the surface to stimulate the movements of the bowels, will no doubt cure this formidable difficulty in some cases. The same also in twisting of the intestine. In regard to tumors, the best that can be done is attention to the general health. Hunger, even, practiced almost to absolute famishing, would no doubt cure those morbid growths in some cases. The same also is to be said of stricture. If this is low down, the difficulty is sometimes remedied by the use of the bougie. Prevention is far better than cure in these formidable ailments. **KEEP THE BOWELS HABITUALLY FREE BY SUITABLE DIET AND EXERCISE** is a piece of advice which it will well reward any and every one to follow.

## CONSTIPATION—COSTIVENESS.

By constipation or costiveness is meant "a condition of the bowels in which the stools are less frequent or less in quantity than in health."

Medical writers generally are agreed that it is most healthy and natural for the bowels to act at least once in the twenty-four hours. Dr. Cullen held that every deviation from a diurnal stool is an approach to an unnatural state. In young infants there are often six, eight, or ten discharges per diem, and indeed the more free the alvine discharges the more healthy the child. As it grows older the dejections become gradually less and less frequent till there are but one or two per day.

There are some singular facts on record in regard to the frequency and infrequency of the fecal discharges. It would seem that a costive habit does not always produce immediately unfavorable results. Dr. Good has collected several accounts of this kind. "Rhodius," he remarks, "gives a case of feces retained nearly a month; and Panarolus one of three months' retention without mischief." Chaptal relates the history of a female who for four months had no discharge from either the bowels or the kidneys, and as little evacuation by sweat, notwithstanding that her diet was confined to milk-whey and broths. She was at length cured by using the cold bath for eight days successively."

\* \* \* "The collectors of medical curiosities have furnished us with various examples of feces retained for half a year, two years, and in one or two instances not less than seven years, without serious mischief." In some of these cases the diminution of the effete matter is effected through the lungs, kidneys, skin, etc., while in others the stomach is obliged to perform the functions of the lower bowel. Dr. Wood quotes Dr. Crampton as having given, in the *Dublin Hospital Reports*, vol. iv., the case of a young woman, living at the time, who for seven years had labored under stercoraceous vomiting, with obstinate constipation, having had stools at distant intervals, only two or three times during the year preceding the report, and none at all during the last eight months. Dr. Bache has given a case in the *N. A. Med. and Surg. Journal*, vol. vi., which continued for a period of ten months, during which there was several times an absence of stools for more than twenty days and once for eighty-seven days, and yet the patient ultimately recovered. "In both these cases," observes Dr. Wood, "the stercoraceous matter vomited had occasionally a strong urinous smell, and there was, during the longer or shorter periods, suppression or retention of urine."

But costiveness, as a general thing, is productive of a variety of unfavorable results. Headache, flatulence, colic, and piles are not un-

frequently caused by a constipated habit if it is allowed to go on for any considerable time. It not only aggravates a variety of ailments with which it may be connected, but is of itself productive of many and serious mischiefs in the system.

In order to obtain a clear understanding of this matter of constipation, a few remarks on the *offices of the colon* and the *nature of the fecal discharges* will be necessary, although for manifest reasons I can not here enter into a lengthy consideration of the subject. Nor is this necessary practically.

Dr. Edward Johnson, whose works on Water-Cure are extensively circulated in this country, makes a strong point of the alleged fact that the colon secretes from its blood-vessels the fecal discharges. Dr. Gully also, whose work on "Chronic Disease" circulates widely among us, dwells upon the same point, calling it an old and well-established doctrine of physiology, while Dr. Johnson seems to claim it as an original notion of his own. I consider that both of these authors, valuable as their works are in many respects, have committed a great error in this matter, and one which tends to great mischief practically. Now, I admit that it is a part of the business of the colon to secrete a portion of effete matter from the blood. But if we are to follow the teaching of these authors we should use only the finest and most nutritious articles of diet; in other words, if the feces are to come wholly from the blood in the colon, why burden the stomach and bowels with brown bread, or any article that contains other than indigestible matter or such as can be carried into the blood? But it must be remembered that we can not possibly subsist on such articles; as Dr. Beaumont observes: **BULK IS AS NECESSARY AS THE NUTRIENT PRINCIPLE.** If we feed a dog on superfine bread and water, he dies in forty-nine to fifty days, because he has no innutritious matter in his food. Give him brown bread, or that in which a portion or the whole of the bran is left, and with that and water he thrives perfectly well. Magendie has proved all this by repeated experiments. Just so also with a man; he can not possibly subsist long on fine bread and water, but can do so perfectly well on brown bread and water, because he gets **BULK** as well as the nutritious principle; innutritious matter with the nutritious, the former being as necessary as the latter.

Dr. Gully, I remark, then, commits a great practical error when he classes brown bread with rhubarb and colocynth, and says the bowels cease to act on the withdrawal of the former the same as the latter. There are thousands upon thousands in this country who for several years—many years, in some cases—have used brown bread habitually, who know the good effects of it, and who will continue to use it as

long as they live. They know, in short, practically, that if they partake only of superfine articles they soon become in a greater or less degree injured, because they violate the law of bulk before stated. In fact, the greatest of all dietetic errors in this country, and the most fruitful *one* cause of disease is, I am satisfied, this of taking too concentrated food. But of this great evil, that pertains to the whole civilized world, in a great measure, we hear not a word from the authors named.

But I admit that in costiveness the colon itself is often at fault either it has too much or too little blood, or is deficient in its vital power, or has two of these conditions combined. In such cases there may be, and often is, costiveness, even when the diet is of sufficient coarseness. The individual is either too active or too indolent—worries his brain too much, or in some other way diminishes and deteriorates the vitality of his system; and hence the result.

In the *treatment* of constipation, then, there are several things to be taken into account. First, we are always to be on the look-out for hernia, tumors, and other mechanical obstructions; secondly, to see to the principle of increasing and distributing properly the vitality of the body; and thirdly, that the diet be of proper quantity and kind. And I will here remark that water-treatment, skillfully managed, will with certainty cure all cases of costiveness when it is not caused by organic disease. This is a great recommendation of the treatment, while drugs of whatever kind or form—as all drug-eaters can well testify—only make it worse.

In multitudes of cases of this kind, all that is necessary to cure costiveness is to regulate the diet. Many a one has been cured in this way in this country.

As local applications, in this condition, the sitting-bath and wet-girdle, worn night and day, or nights only, if it is not practicable by day, are invaluable means. It is of great importance to attend well to the condition of the skin. The mucous membrane of the bowels has great sympathy with the condition of the skin. To maintain this in a healthy, vigorous state, the rubbing wet-sheet, the towel-bath, and the daily shower, where this is well borne, are valuable remedies. The bathing should be followed daily, and semi or tri-daily, should there be need in the case.

Clysters are highly serviceable in this disorder. True, they may be and often are abused. People go on, thinking they may eat and drink almost any thing that they know will constipate the bowels, because they have so good a remedy in the clyster. But this is poor policy indeed; they should be used only as a real necessity. When it is

necessary—that is, when the bowels do not act daily, or sufficiently, take a full, cool, or cold clyster in the morning before or after breakfast, and a small one to retain on going to rest at night. But as soon as the bowels get to helping themselves, as they assuredly will do in time, omit the remedy entirely. In short, use it only as an evil, so to say. It is valuable in its place; even if it does not bring any fecal matter, it yet does good by the stimulus of motion and distention in the lower bowel, by sympathy, and tonic effect. Still the remedy is, to a certain extent, an artificial one, and should be used only when there is a real need.

Dr. Wood, who recommends the trial of a great variety of drug-cathartics in constipation, remarks, that “perhaps, upon the whole, the most safe, and at the same time efficient remedy, in cases of great obstinacy, is simple warm water thrown up the bowel in very large quantities by means of a self-injecting apparatus, and repeated so as gradually to soften and wash away the feculent matter. Any desirable quantity of water may thus be introduced into the bowels.” This is all very good advice; but we need also in connection ablutions, frictions with the wet-sheet, sitting-baths, correct diet, etc.

Several authors mention a stream of cold water poured upon the bowels as a relief in obstinate constipation when all other means have failed

#### FLATULENCE.

*Flatulence, eructation, crepitus, borborygmus, tympanitis, or meteorism,* signifies a state of the bowels in which there is unnatural accumulation of gaseous contents. Gases are always present in the alimentary canal, in order to maintain an equable distention of the parts under their constantly-varying quantity of liquid and solid substances. It is only when these become deteriorated in quality, or too profuse in quantity, that the condition takes on the nature of disease. Flatulence is most common in infants and young children.

*Causes.*—Often more than otherwise the trouble is caused by an excessive amount of food. It may happen also in connection with various diseases of the stomach and bowels, and in fevers.

*Treatment.*—The great thing is to remove the cause or causes of the disorder as far as they may be known. The case should be managed in all respects like one of dyspepsia. Clysters, sitting-baths, and the wet-girdle, are highly serviceable. If the patient can avail himself of the advantages of a thorough hydropathic course at an establishment, so much the better. One of the best possible measures is to abstain resolutely from the third daily meal till the difficulty is removed

## HEMORRHOIDS—PILES.

These terms are properly applied to certain tumors which form in and about the anus. When the hemorrhoidal tumors are situated without the rectum, they are called *external piles*; when within it, *internal*. If blood is discharged, the piles are said to be *bleeding*; if otherwise, *blind*. There may also be hemorrhage from the rectum without piles.

*Symptoms.*—These are: “Small tumors on the verge of the anus, or a number of varicose veins surrounding it; itching, weight, tension, and a sense of bearing down, or pungent pains in the fundament, or perineum, more especially upon going to stool; pain in the back or loins; vertigo; headache; discharge of blood from within the anus; frequent desire to go to stool; varicose or enlarged veins; hard tumors, sometimes indolent or painful; excoriation or erythema about the anus.”

The disease happens most commonly between the thirtieth and fiftieth years, although children may have it. Males are more subject to it than females, except during the period of pregnancy.

*Causes.*—This disease grows more and more common in a community as it becomes more civilized. Such a thing as piles was probably never heard of among the aborigines of our country, certainly not before the whites came among them. A very frequent cause and attendant of piles is constipation. This can not always be said to be the cause of piles when the two exist together, but it is probably the most frequent of all its causes. A congested state of the blood-vessels of the parts, induced by a too stimulating and concentrated diet, conjoined with too sedentary habits, is a frequent cause. Congestion, enlargement, and other obstructions of the liver, by preventing the due return of blood in the abdominal circulation, often causes the disease. Cathartic medicines often induce it, and so also every thing that is calculated to weaken the alimentary canal. Tobacco is a very frequent cause of piles.

*Prognosis.*—The disease, if allowed to run on, is apt by the inflammation to cause ulcerations, fistula, etc., which may and often do destroy life. But piles are many times salutary in their effects, preventing more serious mischief upon other parts. Their suppression is often followed by apoplexy or hemorrhage from some important part. They frequently relieve affections of the head, chest, abdomen, and uterus, and when suppressed cause disease of these parts.

*Treatment.*—If a thorough and permanent cure is set about, the great thing will be to restore in all respects the general health. Good

usage of the stomach and alimentary canal will be particularly important. If we wish to go to the very root of the matter, no good habit must be omitted, no bad one allowed.

If the hemorrhage from the rectum is considerable, it is to be treated like other hemorrhages, which are considered in another place. If the piles become strangulated, a cold hip-bath should be taken, so that the tumor may be reduced. Cold compresses are also useful.

To relieve the great pain, and even spasms, which are sometimes produced by the action of the bowels in such cases, there is nothing that will at all compare with fasting. In these extreme cases the patient should pass one, two, three, or even more days without food. Nothing in the wide world can break in upon this sometimes most painful affection like this. The regular *hunger-cure*, in connection with tonic water-treatment, is a sovereign remedy in piles.

People sometimes mistake in this disease by taking too much food of a laxative character. Such must necessarily tend, in the end, to make the costiveness worse, and so also the piles. But it is of great consequence to get up a healthy, daily movement of the bowels.

Clysters are very useful in these cases. "Half a pint of cold water," says Dr. Guy, "injected into the rectum twice or thrice a day, and retained as long as possible, is a most effectual remedy." In extreme cases, when any action of the bowels prostrates the patient, it is best for a time to have the movement at night, on going to rest. Lying down is of great relief in such cases, inasmuch as the recumbent position favors the return of blood from the affected parts.

It is getting to be less common to recommend the removal of hemorrhoidal tumors by surgical operation than it formerly was. It is true that if a patient is operated upon in this way, and kept upon his back two or three weeks, and pretty well starved at the same time, the symptoms are changed, and he seems better, and no doubt is in some cases. But some are killed by the operation; and it has been found that after such operations the disease is apt to return in a worse form than at first, or some other vital part becomes affected. I do not say that hemorrhoids should *never* be removed with ligature or knife; but the cases can be but few in which such a measure is justifiable.

*Ulceration*, or *fissure* of the anus, is often a sequel of piles, and a troublesome, painful, and obstinate disease. It is to be treated on the same general principles as piles. There should be observed the strictest and most constant care in regard to the cleanliness of the parts. The general health should be attended to in the best possible manner.



*Fistula in ano*, which is often a result of piles, signifies a fistulous track by the side of the sphincter ani. An open fistula may be compared to a worm-hole up the side of the rectum, one, two, three, or more inches in length. A *complete* fistula has one external opening near the anus, and another into the bowel above the sphincter. A *blind external fistula* has no opening into the bowel, although it mostly reaches its outer coat. A *blind internal fistula* opens into the bowel, but not externally, although its situation is indicated by a redness and hardness near the anus.

*Treatment.*—Fistula in ano has been cured in a few cases by a long, continued, and powerful course of water-treatment, but such cases certainly are not common. If we can cure a fistula by the restoration of the general health, it is certainly the best of all methods.

This disease, it should be remembered, is in general only a symptom of some other deep-seated and more formidable malady. The ulcer—for fistula is an ulcer—is nature's outlet, or means of relief for the original disease. If then we cure, as we say, or stop this discharge, we should not wonder if the patient should be destroyed or made worse. Such cases I have known, even where it had been cured in the most careful manner, so far as mere surgery is concerned. After the fistula is healed, the bowels, liver, or lungs are most apt to ulcerate and give way. If I myself had a disorder of this kind about me I should not have it cured certainly till I had spent months, and years, if need be, in restoring the general health to the greatest possible extent. If I could not heal it in this way, I might possibly conclude upon a surgical operation, after which I would practice the hunger-cure upon myself in the most thorough manner. I repeat, beware how you allow discharges of this kind to be meddled with by the surgeon, for *he* is almost of necessity too apt to love to *cut*.

It is not necessary that I should describe the various operations for fistula; if it is resolved upon, the surgeon will do that.

### PROLAPSUS ANI.

This is a frequent disorder of childhood, and yet, so far as I have observed the disease, it has not been generally a very troublesome one. The children affected have outgrown it, although in some cases it has lasted for a considerable time. The complaint excites a good deal of solicitude on the part of parents; but it can not, on the whole, be considered as a dangerous one.

The inner coat of the rectum, in these cases, is looser and longer than the external, and hence it is made to descend by whatever causes a straining or bearing-down sensation. In dysentery, there is a great

deal of tenesmus (bearing down), and falling of the bowel is very apt to follow it.

Ascarides in the bowels, over-purging with medicines, long-continued costiveness, and affections of the bladder will sometimes cause this difficulty.

The bowel, in these cases, descends to various lengths, sometimes to the extent of several inches ; at other times not more than half an inch. When it is down, the child usually suffers more or less pain, in some cases a good deal, but in others little or none at all.

*Treatment.*—In some cases the bowel returns of itself to its proper position in a few minutes after the descent. Always the sooner it is put into its right place, the better. If it is allowed to remain down, the constriction of the part by the sphincter ani will cause it to swell and inflame, and sometimes this constriction will become so confirmed as to prevent a free return of the venous blood of the part ; in consequence of which it soon presents a swollen, livid, or almost black appearance, and one that is frightful to look at.

Now, to return the fallen bowel in these cases, requires some skill and judgment. The method of doing it in recent cases is simple and easy.

For the purpose of reducing the prolapsed bowel, the child should be laid across the lap with its head a little lower than its hips. The part must then be lubricated with sweet oil, or a little hog's lard ; a piece of fine linen may be laid over the part ; after which, the mother or other person operating, is to commence the attempt of restoring it, by making gentle pressure in such direction as shall tend to return the bowel within the sphincter ani. By this means a portion of the blood will be forced up from the distended part, after which the bowel is to be urged upward, and a little backward, when it will soon be found to return within the verge of the anus. In some cases it will be necessary to continue the pressure much longer than in others. Care, gentleness, and perseverance are essential in all such cases.

There is another method which succeeds well in many cases of prolapsus ani. By placing the point of the forefinger against a portion of the prolapsed bowel, and carrying that portion immediately upward until it passes the constricting part, a portion of the protruding part is replaced, after which another, and another, and another portion is returned in the same way, until the whole is replaced. This method will not fail in any case where the protrusion is not very large. But in some cases it will be necessary to make steady pressure in the manner before stated ; and in some instances a good degree of patience must be exercised in order to enable us to effect our object.

But, in some cases, the bowel will become so enlarged by hanging down a long time, that it will not be possible to effect a reduction of the tumor without first reducing the inflammation and size of the protruding part.

Dr. Underwood declares that, "should a case occur in children, as it does frequently in adults, in which the bowel may not be easily returned on account of supervening tumor and inflammation, the stricture will never fail to yield to an injection of cold water, with a few drops of the lith. argyri acetati (acetate of silver and lead), with five or ten drops of the tincture of opium. An hour or two after such injection has been thrown up, the prolapsed intestine, though perfectly black and swollen, will be found to retire of itself." I am convinced, however, that cold water—and I am not sure but that tepid would be still better in many instances—will be found fully as effectual without any foreign admixture whatever.

A tepid sitting-bath, long continued, would in such a case prove highly beneficial; it would not only be a means of relieving pain and soreness, but would bring down the inflammation and size of the protrusion, and thus facilitate its return to its normal position.

One of the best possible means for preventing the pain—and this is very excruciating at times—is to envelop the patient in the wet-sheet. It may be used in the half or folded form, or the entire envelopment may be had recourse to. Its action, in such cases, is that of a great and soothing poultice, the good effects of which can be appreciated best by those who have experienced its salutary effects.

But, probably, the most efficacious of all known means for relieving pain in these cases is fasting. Let the patient be kept a whole twenty-four hours, or longer if necessary, from all food, and all drink except pure soft water. This course will bring the most salutary relief. It may also be adopted in connection with other means.

The great thing, however, in cases of prolapsed bowel, is to effect a *permanent* cure of the difficulty. In order to accomplish this desirable object, it is necessary to institute such a course of diet and general regimen as shall best promote the vigor and constitutional stamina of the body. Bathing, diet, air, and exercise—these are all to be brought into requisition.

The celebrated Dr. Physic, of Philadelphia, was in the habit of curing these cases by a very simple process. He directed first, that the patient should live altogether upon rye mush, sweetened with molasses or brown sugar. By this course the natural discharges become very soft, and such as can be easily expelled without much effort of the child for this purpose; consequently the risk of the bowel falling is

diminished. Secondly, that the patient, if old enough, should be made to pass his evacuations while in the standing posture, as by this means the habit of straining is interrupted, and the bowel permitted to remain in its natural situation.

This method of Dr. Physic's is a good one, and such as would succeed in almost all cases—in all, doubtless, except those in which there is some other local malady in the system, of an incurable nature. But, even in such a case, this course would cause a great deal of relief, and, as a palliative measure, can not be too highly recommended.

It should be observed, in this connection, that the less of molasses or sugar the patient takes with the mush the better; and the unbolted form of the article would be better than that from which the bran has been removed. Wheat, as well as rye, would answer every purpose.

The use of a moderate portion of milk with the rye or wheat mush would be allowable, and, indeed, preferable, I think, to molasses or sugar. The danger of milk, however, would be that of the patient taking too much. In some cases it would doubtless be better to avoid it altogether, as also the sweet.

I am of the opinion that a moderate use of good fruit, in its season, would not hinder a cure in such cases, but, on the contrary, be of service.

Dr. Dewees recommends that a child, in such cases, should be made to sit upon a hard-bottomed chair, without arms, and of such height, as not to allow the feet to touch the floor. I do not exactly see into the philosophy of such a measure, even if the child could be made to submit to it, which would be impossible without the application of physical restraints.

I should remark, that the abdominal wet girdle should be worn constantly, night and day, in all these cases, until a cure is effected. It is an invaluable means of promoting the vigor of the stomach and bowels, and is thus an excellent auxiliary in the treatment.

In the case of adults—and it is aged persons for the most part that are affected in this way—the same general principles of treatment are to be observed. It is of great importance to keep the bowels regular in their action. The operation of exercising a portion of the sphincter ani in such cases may prove successful in some instances, but in others is followed by inability to retain the feces. It is therefore not to be recommended.

*Pruritus ani*—itching of the anus—is sometimes a very troublesome affection. Water in the form of hip-bath, general ablutions, compresses, etc., is an admirable palliative, but a radical cure depends upon a correction of the humors and restoration of the general health

To this end the diet must be regulated in such a way as to insure free and regular movements of the bowels. Costiveness always aggravates the mischief. Frequent injections are highly useful.

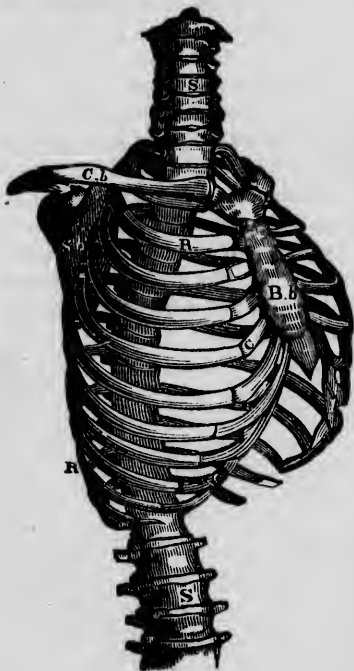
*Stricture of the rectum* becomes in many instances one of the most troublesome and painful of all affections to which the system is liable. It may be either *spasmodic* or *callous*. In the first, "the pain in the rectum is remittent, sometimes intermittent; increased during the expulsion of the feces; volume of the feces slender, but variable; rigid grasp of the sphincter on introducing the finger; structure of the bowel sound." In the second, "there is difficult and painful expulsion of the feces; feces lax, or of invariable slenderness; permanent constriction felt by the forefinger above the sphincter; structure of the bowel thickened, and indurated in the thickened part." The first of these affections is perhaps the most common, and although very obstinate in some cases, is by far more readily relieved than the latter. Both diseases are apt to steal upon the patient, so that before he is aware of his danger it is too late. Drug medicines, it must be admitted, can accomplish but little in such cases, even on the score of present relief. *In the end they can only make matters of this kind worse, because they produce necessarily derangement of the alimentary canal.* The bougie is generally resorted to in such cases for dilating the part; but this also fails in most cases. Dr. Good mentions that in the case of a young lady of eighteen, who could never be persuaded to use the bougie, a spasmodic stricture of the rectum gave way after nearly two years' standing, principally by the use of the hip-bath for half an hour every morning, before she made an effort to evacuate the bowels. Regulation of the diet, hunger-cure, the wet girdle, sitting-bath, clysters, and avoidance of too much walking and other bodily exercise, constitute the best resource in cases of this kind.

## CHAPTER VII.

### OF THE THORAX, OR CHEST.

THE THORAX, or CHEST, is that cavity situated at the upper part of the trunk of the body. It is conical in its shape, with its base below, and apex above. It is bounded as follows: in front by the sternum or breast bone, the sixth superior costal cartilages, the ribs, and intercostal muscles; on the sides by the ribs and intercostal muscles; and behind by the same structure, and by the spinal column, as low down

Fig. 88.



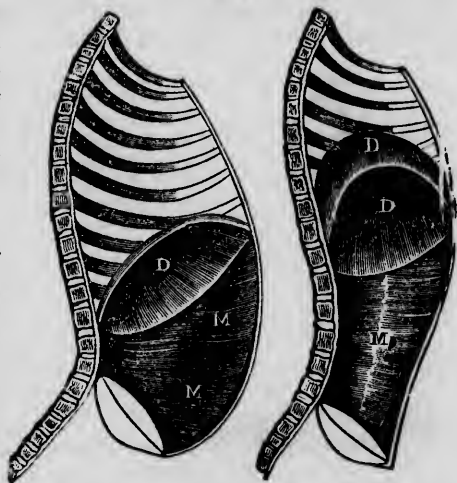
as the upper border of the last rib. Above, it is bounded by the thoracic faciæ, or coverings, and the first ribs, and below by the diaphragm. This latter, which may be termed the floor of the chest, does not lie either horizontally or flat, as may be seen by fig. 39, but rises into the cavity of the chest, presenting a considerable convexity above, and a corresponding concavity below. This is its position in a relaxed state; but when it contracts, it becomes partially flattened, so that the space above it is increased. In the diaphragm, there are apertures through which the esophagus, larger blood-vessels, and certain nerves pass.

B, b, is the breast bone. R, R, the ribs. C, C, cartilages connecting the ribs with the breast bone. C, b, the collar bone. S, S, the spine. S, b, the shoulder blade.

The mechanism of respiration is beautifully illustrated by Dr.

Griscom, of this city (New York), in his most valuable and instructive tracts for the people, entitled, "Uses and Abuses of Air," works which should be in the possession of every family in the land. Fig. 41, page 344, represents the model by which the illustration is made.

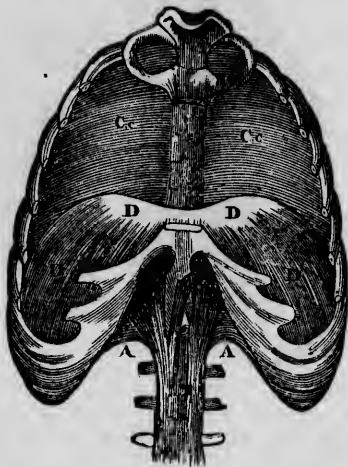
Fig. 39.



SECTIONS OF THE CHEST AND ABDOMEN.

Fig. 40 represents a front view of the chest and diaphragm; the latter relaxed. The front half of the ribs being cut away, the interior of the chest is exposed. C, c, C, c, represent the cavity of the chest empty. D, D, D, D, the diaphragm, rising high in the center, and descending very low at the sides and behind. The white space, at its upper part, is its tendinous portion. A, A, the abdomen.

Fig. 40.

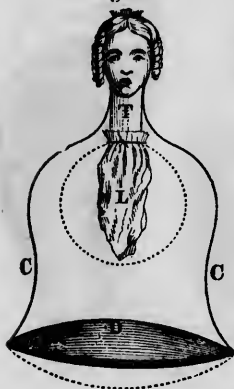


*Anatomical Description of the Lungs, and other parts within the Chest.*—The trunk of the human body, which contains all its great and more important organs, except the brain, may be compared to a house two stories high. In the lower story, there are the stomach, liver, spleen, pancreas, bowels, kidneys, bladder, womb, etc. In the upper story, there are the lungs, or *lights*, heart, and large blood-vessels. The partition, or diaphragm, between these, or the floor, as we may

FRONT VIEW OF THE CHEST AND DIAPHRAGM.

say, of the upper story, as we have seen, crosses at the lower ribs. I can not do better in giving my readers a description of the contents of the chest, than to quote the words of Dr. Erasmus Wilson, a very succinct and accurate writer on anatomy.

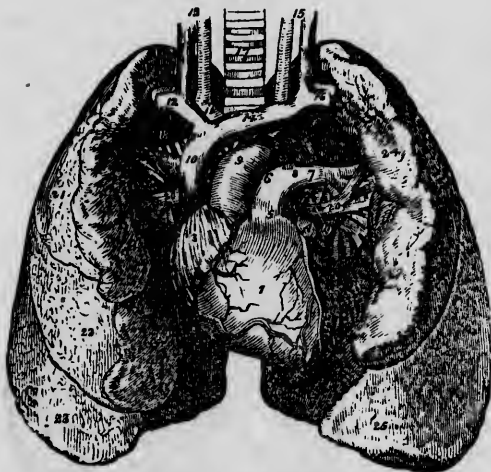
Fig. 41.



C, C, fig. 41, is a bell-shaped glass, to represent the chest. In the mouth of the glass is inserted, very tightly, a cork, T, representing the trachea, having a hole lengthwise through it. To the lower end of the cork is attached a small bladder, L, representing a lung. The lower opening of the bell is closed by a piece of sheet gum-elastic, D, which fits air-tight. This answers for the *diaphragm*.

No communication can exist between the cavity of the bell and the external air, except through the hole in the cork; and any air entering through that hole can only go into the bladder. It is evident, also, that when the diaphragm is pushed into the cavity of the glass, as at D, the bladder will be flaccid and void of air; but when the diaphragm is drawn down in the situation of the dotted curve, a partial vacuum in the glass will be the consequence, which can only be supplied with air through the cork, whereby the bladder will expand to its full extent, shown by the dotted circle; and when the diaphragm is pushed up again, the air will be forced out from the bladder.

Fig. 42.



VIEW OF THE HEART AND LUNGS.

The left vena innominata. 15. The left carotid artery and vein. 16. The left subclavian vein and artery. 17. The trachea. 18. The right bronchus. 19. The left bronchus. 20, 20. The pulmonary veins; 18, 20, form the root of the right lung; and 7, 19, 20, the root of the left. 21. The superior lobe of the right lung. 22. Its middle lobe. 23. Its interior lobe. 24. The superior lobe of the left lung. 25. Its inferior lobe.

1. The right ventricle; the vessels to the right of the figure are the middle coronary artery and veins; and those to its left, the anterior coronary artery and veins. 2. The left ventricle. 3. The right auricle. 4. The left auricle. 5. The pulmonary artery. 6. The right pulmonary artery. 7. The left pulmonary artery. 8. The remains of the ductus arteriosus. 9. The arch of the aorta. 10. The superior vena cava. 11. The right arteria innominata, and, in front of it, the vena innominata. 12. The right subclavian vein, and, behind it, its corresponding artery. 13. The right common carotid artery and vein. 14.



"*The lungs* are two conical organs, situated one on each side of the chest, embracing the heart, and separated from each other by a membranous partition, the mediastinum. On the external or thoracic side they are convex, and correspond with the form of the cavity of the chest; internally they are concave, to receive the convexity of the heart. Superiorly they terminate in a tapering cone, which extends above the level of the first rib, and inferiorly they are broad and concave, and rest upon the convex surface of the diaphragm. Their posterior border is round and broad, the anterior sharp, and marked by one or two deep fissures, and the interior, which surrounds the base, is also sharp.

"The color of the lungs is pinkish gray, mottled, and variously marked with black. The surface is figured with irregular polygonal outlines, which represent the lobules of the organ, and the area of each of these polygonal spaces is crossed by lighter lines.

"Each lung is divided into two lobes by a long and deep fissure, which extends from the posterior surface of the upper part of the organ, downward and forward, to near the anterior angle of its base.

"In the right lung, the upper lobe is subdivided by a second fissure, which extends obliquely forward from the middle of the preceding to the anterior border of the organ, and marks off a small triangular lobe.

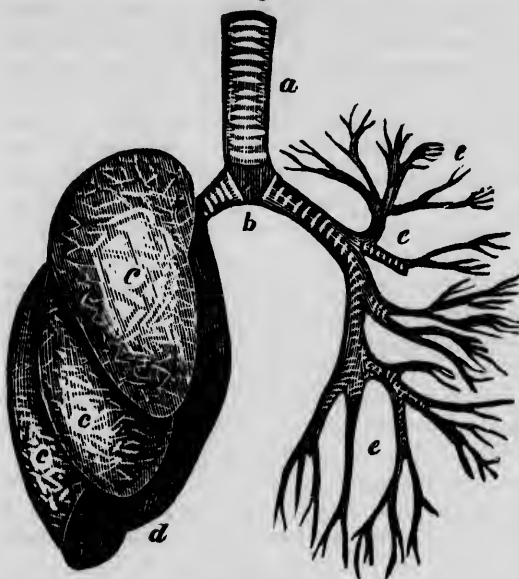
"The *right lung* is larger than the left, in consequence of the inclination of the heart to the left side. It is also shorter, from the great convexity of the liver, which presses the diaphragm upward upon the right side of the chest, considerably above the level of the left. It has three lobes.

"The left lung is smaller, has but two lobes, but is longer than the right.

"Each lung is retained in its place by its *roots*, which is formed by the pulmonary artery, pulmonary veins, and bronchial tubes, together with the bronchial vessels and pulmonary plexuses of nerves."

*The Bronchial Tubes.*—The two bronchi proceed from the bifurcation of the trachea to their corresponding lungs. The right takes its course nearly at right angle with the trachea, and enters the upper part of the right lung, while the left, longer and smaller than the right, passes obliquely beneath the arch of the aorta, and enters the lung at about the middle of its root. Upon entering the lungs they divide into two branches, and each of these divides and subdivides dichotomously to their ultimate termination in small dilated sacs, the bronchial or pulmonary cells.

Fig. 43.



THE BRONCHIAL TUBES.

The letter *a* represents the trachea or windpipe; *b*, its bifurcation or division into the two bronchial tubes; *c, c, c*, the minute ramification of the bronchi; and *d, d, d*, the right lung with its three lobes, the left having but two, to give room for the heart.

In the words of an able writer, Dr. Sweetser, the lungs are reared up in the following manner:

“An elastic air-tube, called the trachea or windpipe, opens into the superior portion of the throat (and consequently communicates

with the mouth and posterior part of the nostrils) by a curious mechanism, in which the voice is mostly formed, called the larynx. This tube passes down the neck, enters the chest, and then forks into two divisions, called *bronchia*, or *bronchi*, from a Greek word meaning the throat, one going to each lung. They then subdivide, and go on ramifying again and again, becoming smaller and smaller, and less and less elastic, until they ultimately terminate in the minute vesicles or air-cells to which I have before alluded. These air-cells, with the air-tubes conducting to them, may be viewed as the framework of the lungs, and constitute the greater proportion of their substance. The cells, too, always contain more or less air; it is to them that these organs owe their light and spongy character.

“The union of these little vesicles is effected through the medium of a fine membrane, denominated cellular, which, though so abundant in many other structures of the body, is here very small in quantity. Everywhere upon these cells minute vessels are ramifying, to carry to them blood to be acted upon by the vital air they are continually receiving, and to convey it back again in its course to the heart, after having undergone its mysterious aerial change.

"It appears to have been a grand principle of nature, in building up the beautiful and important organs of respiration, to provide that the greatest possible quantity of blood should be brought under the influence of the greatest possible amount of air. The number of the air-cells exceeds all accurate calculation. They have been estimated in man at between one and two millions, and as presenting a surface of fifteen hundred square feet. They exercise, too, as may readily be conceived, the most important agency in the breathing function, since it is during the passage of the blood over their delicate coats that the essential vital influence is wrought upon this fluid."

*Physiology of Respiration.*—The general principle of respiration is as follows: "The lungs are suspended in a cavity that is completely closed, being bounded above and around by the bony framework of the chest, the interspaces of which are filled up by the muscles and membranes, and being entirely cut off from the abdomen below by the diaphragm. Under ordinary circumstances, the lungs completely fill the cavity, their external surface, covered by the pleura, being everywhere in contact with the pleural lining of the chest. But the capacity of the thoracic cavity is susceptible of being greatly altered by the movements of the ribs, and by the actions of the diaphragm and abdominal muscles. When it is diminished, the lungs are compressed, and a portion of the air contained in them is expelled through the trachea. On the other hand, when it is increased, the elasticity of the air within the lungs causes them immediately to dilate so as to fill the vacuum that would otherwise exist in the thoracic cavity; and a rush of air takes place down the air-tubes and into the remotest air-cells, to equalize the density of the air they include (which has been rarefied by the dilatation of the containing cavities) with that of the surrounding atmosphere."

But the diaphragm performs the most important part in the act of inspiration. "The contraction of this muscle (see the anatomical description) changes its upper surface from the high arch that it forms, when relaxed and pushed upward by the viscera (such as the stomach, liver, spleen, bowels, etc.), to a much more level state, though it never approaches very closely to a plane, being somewhat convex even when the fullest inspiration has been taken. When thus drawn down, it presses upon the abdominal viscera, and causes them to project forward, which they are allowed to do by the relaxation of the abdominal muscles. In tranquil breathing, this action is alone nearly sufficient to produce the requisite enlargement of the thoracic cavity, the position of the ribs being very little altered. In the expiratory movement, the diaphragm is altogether passive; for being in a state of relaxation, it

is forced upward by the abdominal viscera, which are pressed inward by the contraction of the abdominal muscles. These last, therefore, are the main instruments of the expiratory movement, diminishing the cavity of the chest by lifting its floor at the same time they draw its bony framework into a narrower compass."

The lungs and air-tubes conducting to them are almost entirely passive instruments in the function of respiration. True, the contraction of the lungs when over-distended, and their dilation after extreme pressure, may be partly due to the elasticity of their structure. A moderately distended state of the lungs is that condition which seems most natural. But the fullest expansion, and the most complete contraction of which they are capable, are accomplished only by a voluntary or forcible effort.

The operation of the lungs in respiration may be compared to the action of the common bellows. When the sides of the chest are separated, and the diaphragm depressed, a vacuum takes place within this thoracic cavity, and by the pressure of the atmosphere from without the air is made to rush through the bronchial tubes into the innumerable cavities or air-cells of the lungs. This alternate expansion and contraction of the chest and lungs go on incessantly, whether we sleep or whether we are awake, from the first moment of our existence to the very last.

The lungs are not simple hollow organs, like many others of the human body, but are composed of a sponge-like mass of cellular tissue. The trachea, or windpipe, as it enters the chest is divided, as we have seen, into two branches, called bronchiæ. These pass one to each lung, and as they advance are divided and subdivided to an unlimited and inconceivable extent, terminating in the myriads of air-cells, somewhat in the same manner as the twigs of the trees terminate in leaves. It has been calculated that the number of air-cells grouped around the extremity of each tube is little less than 18,000, and that the total number in the lungs amount to *six hundred millions*. According to this estimate, and even admitting that it is much above the truth, it is evident that the amount of surface exposed to the atmosphere by the walls of these minute air-cells must be many times greater than that of the exterior of the body. When we look at facts of this kind—facts, too, which can not be at all adequately estimated or comprehended by the finite mind—we have an evidence truly, that man is most fearfully and wonderfully made.

The delicateness of the internal surface of the lungs will appear evident when we consider their lightness or trifling weight. Notwithstanding this great amount of surface—thirty times that of the whole

surface of the body, as some have reckoned—the lungs, in the largest individuals, weigh at most only a few pounds. The lining membrane is so delicately and finely constructed, that it readily allows of the transmission of air through it, while the blood is retained in the appropriate vessels for that purpose.

The lungs also contain a large quantity of air. Their external surface is at all times in contact with the internal surface of the chest. The chest is formed, in a great measure, of unyielding bones and ligaments, so that it can not change much in size after it is fully formed. Consequently, from the pressure of the atmosphere from without, the lungs must contain at all times a considerable portion of atmospheric air; enough, in short, to fill the vacuum which would otherwise be formed. It is interesting here to observe an important practical point in the function of respiration. It is easy, by well-regulated exercise, to educate the voluntary muscles of the system to almost any desirable extent. Such exercise, properly conducted, and persevered in for a sufficient length of time, must necessarily result in a greater development, size, and strength of whatever muscle is thus exercised. We know that a blacksmith strengthens his arm by the proper use of the part. The muscles of the lower extremities of sedentary persons are very readily made larger and firmer by properly conducted pedestrian exercises. So, too, that important part of the system, the chest, one upon the development of which health so much depends, can be enlarged and invigorated to a truly wonderful extent.

The atmosphere contained within the lungs is never changed suddenly, as some might suppose. The lungs never empty themselves at any one time. A small portion only, comparatively, is received at each inspiration, and at each expiration a corresponding portion is thrown off. An ordinary inspiration is reckoned at from one to two pints, while the average capacity of the lungs, when the chest is fully expanded, is estimated at about twelve pints. There would thus be left in the lungs, after an ordinary expiration, the remaining ten or eleven pints of air, which serve to keep the air-cells continually distended. Public singers and speakers, and such as habitually use their lungs to a greater than ordinary degree, especially if this be practiced in the open air, it is ascertained may take in at a single inspiration from five to seven pints at a time. By this wonderful power of adaptation, which these delicate structures possess, some very interesting and remarkable effects in vocal and instrumental music may be performed.

There appears to be a great difference between the capacity of the lungs for air, between males and females. Thus Mr. Thackrah (as

quoted by Dr. Combe) mentions that men can exhale, at one effort, from six to ten pints of air, whereas in women the average is only from two to four pints. In ten females, about eighteen and a half years of age, belonging to a flax-mill, and who were laboring under no disease, Mr. Thackrah found the average to be only three and one half pints, while in young men of the same age it amounted to six pints.

Thus it appears that physiologists vary in their estimates as to the amount of air inhaled and exhaled at each respiration. It is difficult to arrive at the exact truth in matters of this kind, nor is this strictly necessary for practical purposes.

At the rate of from one to two pints at each inspiration, an almost incredible amount of air is received into the lungs every twenty-four hours. The average number of respirations is about eighteen per minute. Consequently the number for one hour is one thousand and eighty; in twenty-four hours, twenty-five thousand nine hundred and twenty. Allowing eighteen pints of air—the lowest estimate—to be inhaled every minute, there would be upward of *fifty hogsheads* inhaled each twenty-four hours. The largeness of this amount must serve to impress every one with the importance of paying particular attention to the quality of this life-giving fluid, which is daily and hourly received into these delicate structures of the system, and on the proper state of which life and health so much depend.

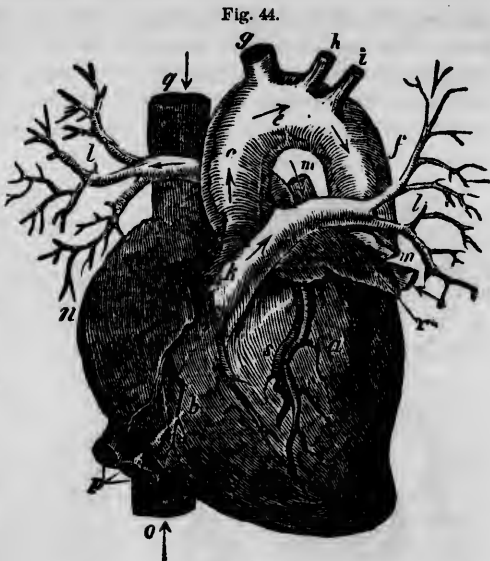
Must it not be always an important consideration whether this air be pure or impure? in other words, whether good or bad? We may subsist for days, and even weeks, without food and drink, but if respiration be cut short for *three minutes only*, death is the inevitable result.

*Circulation of the Blood.*—The nature and importance of the function of respiration will become still more apparent by considering, in this connection, the circulation of the blood.

The blood, which circulates everywhere throughout the living body, is of two kinds: the one dark, impure, venous blood; the other red, pure, or arterialized blood. The latter alone is capable of supporting life.

The heart—with its accompaniments, the arteries and veins—is the great organ by which the circulation of the blood is effected. It is a muscular organ, having somewhat the shape of an inverted cone, lying in the lower part of the thoracic cavity, between the two folds of the pleura, which form the central partition of the chest. (See fig. 44.) It lies partly on the middle line, and partly on the left side of the chest. Strictly speaking, it is a double organ, with two corresponding halves. Each half is also divided into an upper and lower cavity, the upper being called auricles, and the lower ventricles. The right au-

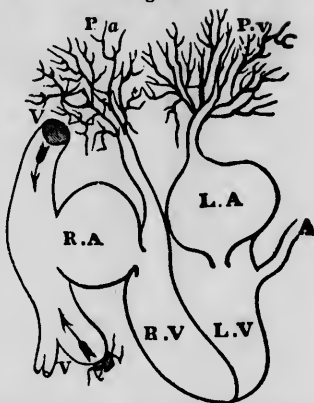
*a*, the left ventricle; *b*, the right ventricle; *c*, *e*, *f*, the aorta, the great artery that goes off from the left ventricle; *g*, *k*, *i*, the arteries that are sent off from the arch of the aorta; *k*, the pulmonary artery, that goes from the right ventricle to the lungs; *l*, *l*, branches of the pulmonary artery, going to the two sides of the lungs; *m*, *m*, the pulmonary veins, which bring the blood back from the lungs to the left side of the heart; *n*, the right auricle; *o*, the ascending vena cava; *q*, the descending; these two meet, and by their union form the right auricle; *p*, the veins from the liver, spleen, and bowels; *s*, the left coronary artery, one of the arteries which nourish the heart.



THE HEART.

Two large veins, V, V—one descending from the head and upper extremities, the other ascending from the lower extremities, abdomen, and other parts—receive all the impure blood from the body, and unite together near the right auricle (R. A). They pour their joint currents into that chamber and distend it. When filled, it contracts upon its contents, and forces the fluid into the right ventricle (R. V). This, when filled, contracts, and drives the blood into the pulmonary artery (P. a), which carries it all to the two lungs, dividing it between them, through appropriate branches, and distributing it, in minute particles, over the surface of the pulmonary air-cells. Its color is yet of a dark purple; but immediately, as it is distributed through the lungs, and is acted upon by the air in the cells, its color changes, and becomes a bright vermilion or scarlet. This change having been effected, it is again collected from the lungs by means of another set of blood-vessels, called pulmonary veins (P. v), where, the vessels from each lung uniting, it is emptied into the left auricle (L. A). From this it is thrown into the left ventricle (L. V). From this cavity arises the main artery of the body, the aorta (A); and through this great tube the purified blood is sent, to be distributed all over the body, visiting every fiber and atom for their sustenance and growth.

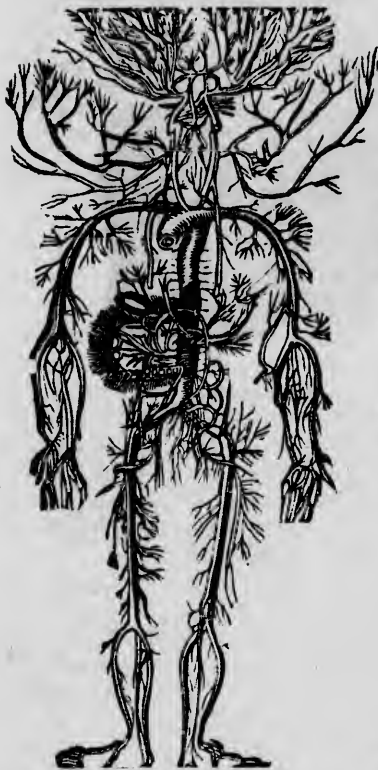
Fig. 45.



RELATIVE POSITION AND MODE OF COMMUNICATION BETWEEN THE CAVITIES OF THE HEART.

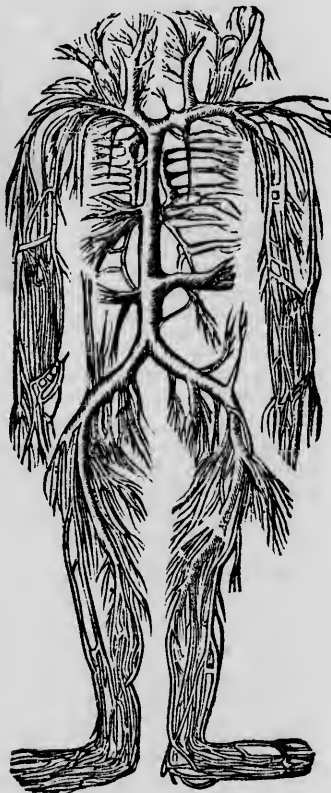
ricle receives the dark blood coming in the veins from all parts of the body. From this it is sent through a valve into the right ventricle; from the right ventricle the blood is sent through a vessel which divides itself into two branches, one of which goes to each lung. These are called pulmonary arteries, although they carry dark or venous blood.

Fig. 46.



ARTERIAL CIRCULATION.

Fig. 47.



VENOUS CIRCULATION.

“In the innumerable branches of this artery, expanding themselves throughout the substance of the lungs, the dark blood is subjected to contact of the air inhaled in breathing; and a change in the composition, both of the blood and the inhaled air, takes place, in consequence of which the former is found to have reassumed its florid or arterial hue, and to have regained its power of supporting life.” The blood



then enters the myriads of minute venous ramifications, which gradually coalesce into larger branches, and at last terminate in four large trunks, two from each lung, and empty themselves into the left auricle, from which the blood is thrown into the left ventricle, and from this through the great aorta, which divides itself again into myriads of arteries, greater and smaller, through which the purified or arterial blood is distributed to every part of the body, however minute.

It is a beautiful phenomenon of nature that the pulsations of the heart and the movements of the chest and lungs harmonize with each other, or have a relation which in health is always maintained. The office of respiration is to induce a constant supply of pure air into the lungs, by which the blood becomes arterialized or purified.

There is an average of four pulsations of the heart to one respiration. The average number of respirations is about eighteen per minute. In infancy it is more, about twenty-five per minute. In old age it is less, about sixteen per minute; but at whatever age, the relation between the respirations of the lungs, and the pulsations of the heart, remain the same. When there are seventy-two pulsations of the heart per minute, as may be ascertained by the pulse at the wrist, there are one fourth as many respirations, namely, eighteen in the same period of time.

The amount of blood sent to the lungs at each pulsation of the heart, in an adult individual of average weight, may be reckoned at about two ounces. According to this estimate, then, more than *twenty-five hogsheds* of blood are sent through the heart and to the lungs every day of the individual's life, and to purify this blood more than twice the amount of air must be inhaled!

When, therefore, we consider the important relations that exist between respiration and circulation, and the most intimate dependence of life at all times on these functions, numerous practical inferences are suggested to the mind. Thus it will be apparent that the *quality* of the air breathed must be ever an important consideration in regard to health. So, too, the quality of the blood which is to be changed constantly by the wonderful, nay, mysterious action of the air upon it! What food shall we eat? What air shall we breathe? What exercise, mental and physical, shall we take? These are important questions, and such as concern every individual, in proportion as health is the best of all earthly gifts.

## CHAPTER VIII.

### DISEASES OF THE THORAX, OR CHEST.

#### CONSUMPTION.

THIS dire disease is, on the whole, the most formidable, the most to be feared of any which affects the race. It comes upon the old and the young—the rich and the poor—the inhabitant of the most delightful parts of the country and the resident of the city—more, it is true, in some localities than others, but it leaves no habitable spot on the face of the globe free from it. Such a disease, therefore, demands special attention in a work like the present one. I can not, however here enter any thing like so fully into the subject in all its phases and bearings as I have already done in a separate volume.\*

The word CONSUMPTION—from *consumere*, to waste away—in its most extended signification, as applied to the living body, denotes that progressive emaciation which usually precedes death in the most of chronic diseases. The appellation is, however, more commonly used to designate a *scrofulous ulceration* of the lungs. By consumption, as used in this country at the present day, is generally understood a *wasting away of the substance of the lungs*. *Phthisis*, from a Greek word signifying to consume, and *pulmonalis* (from *pulmo*, the lung), is the medical term for the same affection. *Phthisis* alone is often used; *pulmonalis* being understood.

Dr. Hooper makes seven varieties of this disease: 1. *Phthisis incipiens*, incipient consumption, without an expectoration of pus; 2. *Phthisis humida*, consumption with an expectoration of pus; 3. *Phthisis scrofulosa*, consumption from scrofulous tubercles of the lungs; 4. *Phthisis hæmoptoica*, consumption from hæmoptysis, or hæmorrhage from the lungs; 5. *Phthisis exanthematica*, consumption from exanthemata, or eruptive diseases; 6. *Phthisis chlorotica*, consumption from chlorosis of females; 7. *Phthisis syphilitica*, consumption from venereal ulceration of the lungs.

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\* CONSUMPTION; Its Prevention and Cure by the Water-Treatment, with Advice concerning Hæmorrhage from the Lungs, Coughs, Colds, Asthma, Bronchitis, and Sore Throat. Fow ers and Wells New York.

**Mortality.**—According to the New York City Inspector's Annual Report of 1848, the deaths during the year previous were as follows:

|                                      |        |                                      |       |
|--------------------------------------|--------|--------------------------------------|-------|
| Whole number of deaths .....         | 15,788 | Of those betw'n 40 and 50 y's of age | 1,279 |
| Of children under 5 years of age.    | 7,378  | “ “ 50 “ 60 “                        | 746   |
| “ between 5 and 10 y'rs              |        | “ “ 60 “ 70 “                        | 580   |
| “ of age, .....                      | 571    | “ “ 70 “ 80 “                        | 389   |
| Of those betw'n 10 and 20 y's of age | 646    | “ “ 80 “ 90 “                        | 153   |
| “ “ 20 “ 30 “                        | 1,947  | “ “ 90 “ 100 “                       | 85    |
| “ “ 30 “ 40 “                        | 1,883  | Above 100 “                          | 8     |

The principal diseases of the mortality of this year, and the number of deaths from each, are stated as below:

|                               |       |                                |       |
|-------------------------------|-------|--------------------------------|-------|
| Typhus and typhoid fever..... | 1,396 | Scarlet fever.....             | 142   |
| Apoplexy.....                 | 446   | Old age.....                   | 180   |
| Cholera infantum.....         | 692   | Delirium tremens.....          | 187   |
| Convulsions.....              | 1,023 | Small-pox.....                 | 53    |
| Debility.....                 | 515   | Whooping cough.....            | 86    |
| Dropsy of the head.....       | 559   | Cholera morbus.....            | 44    |
| Croup .....                   | 274   | Inflammation of the lungs..... | 748   |
| Erysipelas .....              | 162   | Consumption.....               | 1,926 |
| Measles.....                  | 275   |                                |       |

Thus we see, according to this Report, that of the diseases of this metropolis, much the largest number of deaths occurred from consumption. And if we deduct the number of deaths that occurred in persons under twenty years of age, before which death very seldom occurs from this disease, and at the same time bear in mind the fact that probably a considerable number of those reported as dying from “debility,” actually died from pulmonary consumption, we are led to the conclusion, that of all adults dying in the city of New York, more than *one fourth* is from this dire disease. It must, however, be admitted that medical reports, as made at the present day, are, in the aggregate, always, to a greater or less extent, incorrect. But we may safely infer from those of the city of New York, that, year by year, when no great epidemic, like the cholera, prevails, *about one fourth of all deaths occurring after puberty are from pulmonary consumption.*

The ratio of deaths by consumption in the city of New York during this year (1848), in proportion to the *whole* number of deaths, is a little less than one in eight, a result somewhat different from what has been arrived at in the statistics of other cities of the Union, and of the same city in other years.

According to Dr. Sydenham, two thirds of those who died of chronic disease in Great Britain fell victims to consumption. The estimates of Drs. Heberden, Young, and Woolcombe show us that an average of about one in four of the deaths which happen in Great Britain are from this disease

It is said to be a curious fact, that in Bristol, England, there is the greatest relative amount of mortality from consumption, and among its native inhabitants, too, of any place yet compared with it; although this town is in the southern part of the country, and is a great and popular resort for consumptive patients from other parts. This fact does not, certainly, speak very well for the judgment of those who send them thither.

“Laennec states,” says Dr. Sweetser, “that in Paris, and the great cities in the interior of France, the proportion of deaths from consumption is well known to be one in four or five.”

In the city of Boston, according to Dr. Sweetser, “the average number of deaths by consumption, as compared with other diseases, may be about one in four or five. In New York, the proportion will vary but little from this. In Philadelphia, it may be about one in five.”

Dr. Elliotson quotes Dr. Thomas Young (author of a “Practical and Historical Treatise on Consumptive Diseases,” whom the former regards as good authority, he having referred to every work written on the subject previously to his own), as asserting that one fourth of the inhabitants of Europe die of consumption.

**Causes.**—In order to obtain a clearer understanding of this subject, it will be necessary in this place to speak of what is denominated, in medical language, TUBERCLE.

This word is derived from the Latin term, *tuberculum*, which signifies an excrescence, tumor, or swelling of some part of the living body. In pathological anatomy, the term is applied to a diseased product, or species of degeneration, which is composed of “an opaque matter, of a pale yellow color,” resembling cheese in its color and consistence. They vary much in size, from that of a pin-head up to the size of an orange. When, however, they have become large, it is supposed that many must have coalesced or come together. They are probably always small at first, but as they grow larger, many become amalgamated into one. They are at first, perhaps, always more grayish and semi-transparent than opaque and yellow. It is when they have increased in size and number, and when many have grown into one, that they take on this latter character.

“When tubercles are few,” says Dr. Elliotson, “they seldom exceed the size of an almond each, but the masses produced by their aggregation may be very large.” The whole of a lobe of the lung may become converted into a solid tubercular mass, and it is said, indeed, that a whole lung has, in certain cases, become thus affected.

Tubercles may occur in almost any part of the body. Indeed, no part, with the exception of the bones and the external skin, may be said

to be wholly exempt from a liability to them. According to a table quoted by Sir James Clark, the result of fifty careful post-mortem examinations of children, made with the view of determining the relative frequency of tubercles in different organs, was as follows:

|   |           |
|---|-----------|
| Bronchial glands (glands of the windpipe).....                        | 49 times. |
| Lungs.....  | 38        |
| Cervical glands (glands of the neck) .....                            | 26        |
| Mesenteric glands (in the abdomen) .....                              | 25 “      |
| Spleen .....  | 20 “      |
| Pleura (lining membrane of the chest) .....                           | 17 “      |
| Liver.....  | 14 “      |
| Small intestines .....  | 12 “      |
| Peritoneum (surrounding membrane of the intestines).....              | 9 “       |
| Large intestines .....  | 9 “       |
| Brain.....  | 5 “       |
| Cerebellum .....  | 3 “       |
| Membranes of the brain.....   | 3 “       |
| Pericardium (covering membrane of the heart) .....                    | 0 “       |
| Kidneys .....   | 2 “       |
| Stomach .....   | 1 “       |
| Pancreas .....  | 1 “       |
| Vertebrae, radius, tibia (bones of the spine, fore-arm, and leg)..... | 1 “       |

A table of Louis, showing the relative frequency of tubercles in the different organs, referring to persons above the age of fifteen who died of consumption, is as follows:

|  |           |    |
|--|-----------|----|
| Tubercles in the small intestines..... | 1 case in | 8  |
| “ “ large.....                         | 1 “       | 9  |
| “ “ mesenteric glands.....             | 1 “       | 4  |
| “ “ cervical .....                     | 1 “       | 10 |
| “ “ lumbar glands .....                | 1 “       | 12 |
| “ “ spleen .....                       | 1 “       | 14 |
| “ “ prostate.....                      | 1 “       | 13 |
| “ “ ovaries.....                       | 1 “       | 20 |
| “ “ kidneys .....                      | 1 “       | 40 |

These persons having all died of consumptions, had, of course, tubercles in the lungs, as well as in the other organs mentioned.

Dr. Good gives similar testimony to the above in regard to tubercles. He observes: “There is not an organ of the body but is capable, as well in its substance as its parenchyma (covering), of producing tubercles of some kind or other; and occasionally of almost every kind at the same time; for Bonet, Boerhaave, and De Haen, as well as innumerable writers in our own day, have given striking examples of clusters of cystic tubers, or enlarged tubercles, of every diversity of size, existing both in the abdomen and in the thorax (chest), formed in the interior of their respective viscera, or issuing from the surface of their serous membranes, some of which are filled with a limpid fluid, others

with a gelatinous, a mucous, or a puriform, and others again with a cheesy, pulpy, or steatomatous mass."

It is supposed, although it can not be proved positively, that tubercles may remain many years in an uninfamed or quiescent state; and this must depend much upon the general habits of the individual. Bad habits, bad air, bad food, and bad influences generally, develop them often to a fearful extent.

Ordinarily, when tubercles have been once formed, they go on augmenting in size more or less rapidly, according to the habits of the individual, the climate in which he lives, and all the varying influences which go to operate on the health, until they are converted at last into a fluid mass, resembling common pus. This may be said to resemble unstrained whey, and is sometimes stained with blood, or a black matter formed in the lungs. As this stage of maturation or softening goes on, the fluid mass finds its way into the air passages, and is expelled from the lungs day by day, by expectoration, leaving an ulcerous excavation or cavern, as some call it, in the lungs. In some cases this process of ulceration appears to remain nearly stationary for an indefinite time, until at last the individual sinks under it.

Is tuberculous disease curable? It has been regarded by many that tuberculous diseases of the lungs are never cured. These morbid productions are found in the youngest children, even in the unborn infant, and from this up to the octogenarian, and how much older we do not know. But that tubercles can never be cured is not yet proved. The world generally has poor notions of what it is possible to do by a combination of good general circumstances, in the curing of these worst forms of disease. If we take a number of dirty children—those of the lowest and most unhealthy and miserable class in any of our great cities, and remove them to a good air, keep them clean, give them good food, and, in short, bring them up in accordance with the principles of physiological science, we find that most of them will get along remarkably well, better than children ordinarily do whose parents are in good circumstances. Such things have been done over and over again.

*Animals subject to Tubercles.*—These morbid productions are not peculiar to the human race. In menageries, where animals are kept in a state which is certainly very far removed from being the natural one, the animals are often affected with a cough, and the other symptoms of pulmonary consumption. Their lungs, too, are often found after death to have become ulcerous, and are filled with tubercles. The monkey family, it is said, too, when removed from their climate to colder regions, and are at the same time kept in a confined and unnatural state, frequently die of tubercular disease. The lungs of the

domestic animals, as the horse, ox, cow, sheep, hog, rabbit, and other of the mammalia, are also frequently to be found tuberculous. It is said a dog, however, is rarely affected with them. Tubercles have also been found in the bodies of domestic birds, as the turkey, fowl, etc. According to M. Andral, most of the animals in which tubercles are found to exist, are either transported from a hot to a cold climate, where they are deprived of their liberty and exercise, as in the instance of monkeys and parrots; or else confined in damp situations, without the light of the sun, and almost without air, as cows, pigs, and house rabbits; or exposed to constant alternations of heat and cold, or to constrained and violent exercise, as in the case of the horse.

"All the milch cows in Paris, and no doubt elsewhere," says Sir James Clark, "become tuberculous after a certain period of confinement. I have been informed that for some after the disease has commenced, the quantity of milk obtained is greater than before, and that their flesh is more esteemed by the unsuspecting epicure than that of the healthy animal. A circumstance of the same kind is mentioned by Aristotle, who observed tubercles in the pig, the ox, and the ass; in regard to strumous pigs, he says that when the disease (*grandines*) exists in a slight degree, the flesh is sweeter."

When we thus learn how easily tubercles may be generated in animals by taking them out of their own climate, and by placing them in unnatural and unhealthful conditions, how deep and lasting should the impression be made upon our minds, that disease is, as a general fact, a thing of man's own begetting; that the race is, as a whole, accountable for the diseases with which it is afflicted!

*Hereditary Descent.*—It is to be observed that consumption, although often an hereditary disease, is not always so. The new-born child is sometimes affected with tubercles, even where no taint of the sort can be traced in the family. Laennec observed that "numerous families are at times destroyed by the disease, whose parents were never affected by it." Cases have been known in which the parents have both died at a very advanced age, but previously having buried a large family of children, all of whom died of consumption. Laennec has mentioned an instance in which the father and mother died upward of eighty years of age, and of acute maladies, after having seen fourteen children, born healthy, and without any indications of a predisposition to consumption, successively carried off by it, between the ages of fifteen and thirty-five.

Dr. Clark also informs us, that instances have come under his observation, "where whole families have fallen victims to tuberculous consumption, while the parents themselves enjoyed good health, to an

advanced age, and were unable to trace the existence of the disease in their families, for generations back."

*Intermarriage.*—"Members of families," says Dr. Clark, "already predisposed to tuberculous disease, should at least endeavor to avoid matrimonial alliance with others in the same condition; but above all they should avoid the too common practice of intermarrying with their own immediate relatives—a practice at once a fertile source of scrofula, and a sure mode of deteriorating the intellectual and physical powers, and eventually the means of extinguishing a degenerated race."

It has always been found injurious among the inferior animals to allow those which are in any way diseased to breed in-and-in, as the term is. So well apprised of this fact are breeders of animals, that they are in the habit of introducing frequent *crosses* among their flocks. If man is so careful in rearing his horses, oxen, sheep, and swine, how much more so should he be in the propagation of his own species!

The remark, that it is a sign of bad luck to marry a relative, has long since grown into a proverb, and, as is true with most other popular proverbs, it is based in wisdom drawn from observation. It was long since observed that, in unions between blood-relations, the various imperfections existing in families, and their morbid predispositions, are exceedingly liable to be perpetuated; and in consequence of the impulse received from both of the parents, are greatly aggravated in the offspring. The degeneracy of many royal families might be cited in proof of this doctrine.

*Alcoholic Drinks.*—Spirit-drinkers are often affected with a cough. This is particularly troublesome when they first rise in the morning. Any thing which injures the general health, as all forms of spirituous drinks do, and especially any thing that excites a cough, is very liable to become a cause of pulmonary disease. "While this pernicious habit," says Sir James Clark, "is one of the most powerful means of debasing the morals of the people, and of extinguishing the best feelings of human nature, it is no less fatal in destroying the physical constitution. There is good reason to believe that the abuse of spirituous liquors among the lower classes in England is productive of consumption, and other tuberculous diseases, to an extent far beyond what is generally imagined. The blank, cadaverous aspect of the spirit-drinker bespeaks the condition of his internal organs. The tale of his moral and physical degradation is indelibly written on his countenance. The evil, unfortunately, does not rest with himself by destroying his own health, but entails on his unhappy offspring the disposition to tuberculous disease."



**Mercury.**—Dr. Clark observes that mercury, when used so as to affect the system, has been very generally considered as capable of inducing tuberculous disease. “I am inclined,” says he, “to believe this; and therefore consider that in persons of a delicate or strumous constitution, its use requires the greatest caution and circumspection.” If mercury is capable of producing dropsy, as is stated by Sir Astley Cooper, or enlargement of most of the glands of the body, as according to Dieterick, or sloughing and ulceration of the gums and throat, as according to Sir Astley Cooper and many others, or mercurial leprosy, as is stated by Moriarty, or mercurial fevers and salivation, as is stated by numerous authorities, or mercurial tremors, or palsy, as according to Dr. Christison, or mercurial wasting of the bowels, as has been often observed, or a rotting and decaying of the bones, a fact well known to medical men—I say, if mercury may cause all these evils, which it does, with a host of others, too numerous to mention, we may easily believe in the existence of the mercurial wasting, described by Travers as known “*by irritable circulation, extreme pallor and emaciation, and acute and rapid hectic, and an almost invariable termination in pulmonary consumption.*”

According to experiments, made in France by Cruveilhier, on dogs, in which crude mercury was injected into the lungs through the air-tubes, and into the cellular textures of other organs, tubercles, with a globule of mercury in their center, was the result.

**Sexual Abuses.**—If solitary vice, that one of the greatest of human curses is sufficient, as is testified by Dr. Woodward, to cause idiocy, the most deplorable of all forms of insanity, oftener than all other causes put together; if it is sufficient to cause an amount of depression of spirits, melancholy, dissatisfaction with life, and a waste of the strength of both body and mind to a most deplorable extent, as is often witnessed, we may well understand that this unseemly practice may often become a cause of consumption; nay, such must inevitably be the result. So, too, connubial excesses often develop this disease, as may be inferred from the fact that we often see the newly-married pass rapidly into hopeless decline. “I have seen many young men die of phthisis,” says Dr. Elliotson, “a twelvemonth after their marriage, although they have shown no signs of it before.”

If a young man contracts that most loathsome of all diseases which arises from licentious habits, the syphilis, and if then, superadded to this, he gets, as is generally the case, a course of medical treatment by which the system is saturated with mercury, iodine, and like medicines, he may be very thankful if he does not pass into a rapid consumption, or some other decline equally fatal.

*Ages most liable.*—A table of M. Louis showing the ages at which death occurs from consumption is as follows :

|  |  |
|--|--|
| From 15 to 20 y'rs of age.... 11 deaths. | From 40 to 50 y'rs of age.... 23 deaths. |
| " 20 " 30 " " .... 39 "                  | " 50 " 60 " " .... 12 "                  |
| " 30 " 40 " " .... 83 "                  | " 60 " 70 " " .... 5 "                   |

In a table of Laennec of 223 deaths from consumption, recorded by Bayle and Louis, there were :

|  |  |
|--|--|
| From 15 to 20 y'rs of age.... 21 deaths. | From 40 to 50 y'rs of age.... 44 deaths. |
| " 20 " 30 " " .... 62 "                  | " 50 " 60 " " .... 27 "                  |
| " 30 " 40 " " .... 56 "                  | " 60 " 70 " " .... 18 "                  |

Dr. Alison gives, as the result of practice in the New Town Dispensary, at Edinburg, 55 deaths occurring during the two years, as follows :

|                                       |  |
|---------------------------------------|--|
| Before 15 years of age..... 8 deaths. | From 30 to 40 years of age... 10 deaths. |
| From 15 to 30 years of age.. 18 "     | After 40 " " ... 24 "                    |

A table of Sussmilah, of Berlin, made in 1746, is as follows :

|   |  |
|---|--|
| Before 15 years of age..... 251 deaths. | From 30 to 40 years of age. 66 deaths. |
| From 15 to 30 years of age. 73 "        | After 40 " " . 230 "                   |

Louis has given, also, another table, on the authority of M. Bayle, as follows :

|  |  |
|--|--|
| From 15 to 20 y'rs of age.... 10 deaths. | From 40 to 50 y'rs of age.... 21 deaths. |
| " 20 " 30 " " .... 23 "                  | " 50 " 60 " " .... 15 "                  |
| " 30 " 40 " " .... 33 "                  | " 60 " 70 " " .... 8 "                   |

*Forms of the Disease.*—In consumption, there is, first, that which affects infants and children, and which is often very difficult to detect; second, latent consumption of adults, which is also a very obscure malady; third, chronic consumption, in which the symptoms are more marked and distinct in character, and which may pass into an acute attack; fourth, the acute variety, which happens oftenest in young persons, especially young females, runs its course frequently with great rapidity, causing death in one, two, or three months; but which may also precede or follow the latent and chronic varieties of the disease.

*Quick Consumption.*—The duration of consumption is more commonly from nine to thirty months; but, in what is popularly termed quick consumption, the disease frequently runs its course in two or three months, and occasionally less. Persons have died often in a single month from the disease. This form of tuberculous pulmonary affection has been aptly termed "*galloping*" consumption. The disease is more liable to take on this rapid form when developed by some other disease, as a fever, small-pox, scarlatina, measles, and the like. A common inflammation of the lungs, where tubercles have been sup-

posed to exist, not unfrequently ends in acute consumption. The inflammation, it is supposed, serves to bring into action the tuberculous disease.

*Symptoms.*—Dr. Hooper observes: “Tubercular phthisis usually begins with a short, dry cough, occurring, for the most part, on first rising in the morning, and so slight as to become habitual before it excites the attention of the patient. It is sometimes accompanied by slight dyspnœa, increased on exertion, and there is generally some degree of languor, weakness, and emaciation. The patient is soon fatigued, and is easily thrown into a perspiration; slight dyspeptic symptoms, diarrhea, and frequent headaches, and a small, frequent, quick pulse, are also among the early symptoms, and, on inquiry, the patient will often recollect that he has formerly spit blood.

“After these symptoms have continued for a variable period of several weeks, months, or even years. in consequence of a cold, or some trivial exciting cause, the cough becomes more habitual, and is particularly troublesome during the night; the dyspnœa increases; there are shooting pains in the chest; expectoration takes place, at first of a frothy mucus, which afterward becomes more viscid and opaque, and is often mixed with small round particles of tubercular matter, with pus, or with streaks of blood; or hemoptysis occurs in a more marked form, and to a greater extent.

“As the disease advances, the cough and dyspnœa become more urgent; the expectoration more abundant; the emaciation and weakness more considerable; the pulse more frequent; the face flushes toward evening, and hectic fever sets in, followed toward morning by profuse perspiration; the urine is high-colored, and deposits a branny sediment; the palms of the hands and soles of the feet are affected with burning heat; the tongue, from being white, is now preternaturally clean and red. The appetite now often mends, and generally becomes better than in the first stage of the complaint. Profuse diarrhea, sometimes tinged with blood; colliquative sweats, extreme emaciation, the falling off of the hair, edema of the legs, aphthæ in the mouth and throat, hectic fever in its most marked form, and a very feeble, rapid, and often irregular pulse, usher in the fatal termination. Still the appetite often remains entire, and the patient flatters himself with the hopes of speedy recovery, and is often vainly forming distant projects of interest or amusement, when death puts a period to his existence.”

In my work on this subject I have made the following practical deductions from a lengthy description of the symptoms of consumption:

1. That pulmonary hemorrhage, although sometimes a fatal symp-

tom, is in general not so alarming an occurrence as is generally supposed; but that it always indicates a wrong state of things in the general health, and, as a consequence, demands special care and attention.

2. That bronchitis, or inflammation, whether acute or chronic, of the mucous membranes of the bronchial tubes, and also common sore throat, are frequent forerunners of a tuberculous disease.

3. That a cough is not necessarily an alarming symptom, but is one, however, which should always be regarded with suspicion, especially by those who are born of consumptive parents, or in whom there is a strong predisposition to pulmonary disease.

4. That we are not to regard purulent matter as being indicative necessarily of incurable disease; yet the expectoration of such matter is always to be looked upon as being a more unfavorable symptom than if mucus and light frothy expectoration only is thrown off.

5. That dyspnœa, or difficult breathing, although a frequent symptom of pulmonary consumption, is also frequently to be observed in other maladies.

6. That pure asthma and pulmonary consumption do not, as a rule, go together; that an attack of the latter appears sometimes to cure the former.

7. That night-sweats, although they occur in any condition of the system, attended with great debility, are always to be looked upon with caution, in regard to pulmonary disease.

8. That hectic fever, although slight in some cases, is one of the most common symptoms of this disease.

9. That thirst is not usually a prominent symptom.

10. That diarrhea, emaciation, swelling of the limbs, and extreme soreness of the mouth and throat are to be looked upon as very unfavorable omens.

11. That pains in the chest, appearing at first to be only slight, and of a rheumatic nature, but afterward increasing in severity as the disease advances, generally attend this disease.

12. That extreme debility is one of its most prominent symptoms.

13. That the individual generally becomes very nervous, feverish, and irritable.

14. That the intellect usually remains clear.

15. That delirium comes on a little before death in some cases, especially if the fever be not properly treated.

16. That suppression of the menstrual function is a frequent symptom of females toward the fatal close of the disease.

17. That the cessation of the menses may also attend a variety of circumstances where no pulmonary disease is present.

18. That pregnancy and nursing appear, in general, to check consumption for the time, and in some cases to cure it altogether; but that, as a general fact, these circumstances tend only to hasten the final termination of the disease.

*Treatment.—The Cough.*—One of the best palliative means for cough, when consumption has not proceeded to a great extent, is to make the body naked, and wash the surface with pure water, especially the throat and chest. Even washing the feet will often relieve a troublesome cough. Walking or riding in the open air is also good. Omitting a meal, especially at night, will many times make a material difference in this symptom. The sipping frequently of pure soft water, when a cough is troublesome, is also a most excellent means. There is more or less feverishness in the blood always, when troublesome coughing occurs, and hence it is that washing the surface, and drinking water, that is, cooling the mass of the circulation somewhat, is good in these cases.

The *difficulty of breathing*, which often attends lung complaints, may be greatly modified and relieved by the washings and wet-hand frictions, such as I have recommended for cough. Here, too, we must be careful in diet, and also in regard to pure air. The same general rules which apply in cough, apply also to this symptom.

The *expectoration* may be greatly modified in its character by diet, and especially by the drinking of pure soft water. If the food is simple and unstimulating, the expectoration will be less.

*Perspiration.*—The power of water to promote the strength of the living tissue is nowhere more strikingly exemplified than in the treatment of hectic night-sweats. With every thing besides well managed, it would seem that these debilitating night-sweats can be effectually checked, to the very last. Often have I known persons who have sweltered for weeks and months nightly with perspiration, in whom it was checked altogether by the simple effect of cold water, and wet frictions upon the surface. Nor would I have the water applied very cold; only of such temperature as the patient can bear, that is, can get comfortably warm after. In proportion as these night-sweats are checked by water is the strength supported, the health made more comfortable in every respect, and, to all appearance, life materially prolonged. These washings may be practiced two or three times daily, with the view of invigorating the surface. Pure fresh water—the purer and softer the better—should be used.

*Hectic Fever.*—Nature teaches us, most unequivocally, as to what is the greatest as well as the most abundant of all febrifuges. All other remedies than pure water and fresh air dwindle into comparative

insignificance when compared with water. As soon as the consumptive patient begins to feel the heat coming into the feet and hands, let him at once commence washing these parts. He need not take the water extremely cold, but washing freely the face, hands, and arms often accomplishes wonders in keeping down this symptom.

Heat, it should be remembered, takes away the strength rapidly. It is heat, too, that causes delirium in fevers; and if this is properly attended to by the cooling plan, I think that symptom can never occur in this disease. In proportion as the heat is kept down, the strength will be supported, and the mind rendered more clear. Perseverance in this method also aids in keeping off debilitating sweats. Sweating comes on in proportion to the amount of feverishness, as a general thing; hence to remedy the one is equivalent to preventing the other.

*Diarrhea.*—This is generally in proportion to the debility present; hence any thing which tends to a betterment of the health and strength, will aid in keeping off this symptom. It arises in consequence of ulceration of the bowels; hence a radical cure can seldom be effected. I would have persons distinguish, however, that during the progress of consumption, they may very easily, at times, have other forms of diarrhea than that which attends its latter stages, so that they should not become alarmed at every little attack of the kind they may experience.

As a palliative means to be used in the fatal diarrhea which occurs toward the last of consumption, pretty copious injections of lukewarm or tepid water into the bowels will be found a most excellent means. It serves to soothe the patient, and at the same time supports his strength. Have a good instrument, and resort to the internal rinsing at every time when the bowels act unnaturally. Use it either just before, or after, or both. Be the diarrhea of whatever kind, this is a most excellent remedy.

*Pains in the Chest.*—For these, as the best of all local appliances known, we wring wet towels tolerably dry out of cold water, lay these upon the chest, over these dry flannels, or other materials enough to insure a tolerable degree of warmth. Some have worn wet jackets over the whole chest—one, two, or three thicknesses, and then dry ones enough to insure the proper degree of warmth. In hot climates and hot seasons anywhere, these applications are liable to become almost immediately too warm, and so to debilitate the system. At such times, the frequent washings of the chest with the wet hand will be found preferable. This may be done repeatedly during the day. Any one who is timid in regard to these applications—and all should be careful in their use—can commence with a simple application, a

single napkin, or the like, at first ; place it over the most painful part, and watch its effects ; and if it does well, a larger application may be made, and so on to any extent desired.

If there is already extensive ulceration, these applications must be made cautiously. The system must not be too much chilled in such cases, if so, harm will be done. With a little exercise, the patient's feelings will be a sufficient guide in this matter. Let him remember, however, if his case be a bad one, that when there is so much prejudice as now exists in the world against the use of cold water, and so much ignorance of its effects, if he wear the wet cloths, and is perfectly sensible that they do him good, and if he yet is doomed to get worse, in consequence of the incurability of his case, there will not be wanting those among his friends who will be ready enough to tell him that these water applications have caused his death. With the great and all-pervading ignorance that exists concerning the use of this safest of all nature's remedies, people would a great deal rather be bled, blistered, poisoned by calomel, and a hundred other vile drugs which were never designed by God for the human system at all, than to use that pure element which is of all others incomparably the best, and which was designed for man's universal use.

*The Debility.*—This may be much prevented by frequent ablutions in tepid, cool, or cold water, according to the patient's strength. If a person is far gone with consumption, I would certainly not use the coldest water ; I would, however, in all cases use it somewhat cool. It is most surprising to witness to what an extent the patient's strength may be supported in this way. Pursuing this plan, many are brought to believe that they are certain to obtain a cure, so great is the benefit experienced. After having been very weak, and quite confined to the house, they became able to walk miles, and bear it well ; and this improvement may continue for months. Still, however, it must be acknowledged that, in many cases, the patient must, in the end, sink ; yet it is a great comfort to keep him as well as may be ; and if life is desirable at all under such circumstances—and the instinct of nature teaches us the duty of fighting disease to the very last—it is a great satisfaction to keep him able to be about in the open air as long as possible.

“One thing of which I am convinced,” says Dr. Billing, of London, the very able author of a work entitled “First Principles of Medicine,” “is, that the true principle of treating consumption is to support the patient's strength to the utmost. I am satisfied that the want of exercise induces a languor which makes consumptive patients wear out faster than if permitted to ride or walk, according to their strength, in the open air.”

Dr. Billing further observes, that "some years ago, a gentleman, of the name of Stewart, adopted the rational mode of treatment, with which he had considerable success; but because he could not work miracles, his plan was unjustly depreciated. His method was entirely tonic, and especially the cautious use of cold and tepid ablutions of the skin, a modification of cold bathing—a remedy which is found so uniformly beneficial in promoting the resolution (cure) of scrofulous tumors."

Dr. Elliotson also strongly recommends bathing in this disease. "I saw a young gentleman," he observes, "whose brother died of phthisis. He expectorated blood at the same time as his brother; and they appeared equally disposed to the disease. In one it run on very fast, and he died. The survivor was spitting blood continually, and the pupil of his eye was large. I prevailed upon him to begin the use of the shower-bath, and he has done so all the winter. The result is that he has lost his cough, spits no more blood, and is now a strong young man. No doubt, if he take care of himself, and commit no excess of any description, he will go on well. I do not know of any means so powerful, in hardening the body, as the cold shower-bath."

There is no magic, I will remark, as to the particular form of bathing. Any good ablution—the dripping-sheet, as it is called in our hydropathic works, the affusion of water, the washing of the body in a wash-tub, or merely by wet towels and the wet hand—all of these are good modes. The shower-bath, it is to be remarked, is one of the most severe of all; hence great care should be exercised in its use.

Preventing debility, then, we find to be the most effectual mode of treatment, in pulmonary consumption; and for this object bathing, in connection with proper exercise, is the most effectual known means.

*Atmospheric Changes.*—Sudden changes of weather, from warm to cold or damp, appear always to affect consumptive invalids unfavorably. We find often that persons who can get along very well during the milder months of the year, experience great difficulty as the season of sudden changes approaches. A more equable temperature of the ocean doubtless contributes in a high degree to the advantages of voyaging. Persons experiencing much difficulty of respiration, when on land or at the sea-side, will often be very sensibly relieved by sailing only so far from the shore as to be beyond the immediate influences of the land breezes. The temperature at sea when beyond soundings is in a great measure regulated by the mass of water, the range of temperature of which is very limited. Hence there is an exemption from the influence of those sudden and great vicissitudes of heat and cold so common to our own climate, and which seem to be extremely prejudicial in all descriptions of pulmonary disease.



*Exercise and Open Air.*—Exercise and exposure to the open air and light constitutes, doubtless, the greatest of all remedial resources in this disease. The exercise should be of that kind, however, which does not powerfully excite the respiratory and circulatory functions. Riding long journeys in a carriage is particularly useful. Horseback exercise has been highly recommended. Sydenham, one of the earlier English physicians, looked upon horseback exercise as a particularly efficacious remedy in pulmonary complaints. In reference to the treatment of cough and consumption, he observes: "But the best remedy hitherto discovered in this case, is riding sufficiently long journeys on horseback, provided this exercise be long continued; observing that the middle-aged must persist in it much longer than children or young persons. For, in reality, the Peruvian bark is not more certainly curative of an intermittent fever, than riding is of a consumption at this time of life." And elsewhere he says: "But the principal assistant in the cure of this disease, is riding on horseback every day; insomuch that who ever has recourse to this exercise, in order to his cure, need not be tied down to observe any rules in point of diet, nor be debarred any kind of solid or liquid aliment, as the cure depends wholly upon exercise."

Dr. Andrew Combe relates his experience of the good effects of horseback-riding, in connection with other means. He says: "To carry on what was so well begun (namely, by a sea-voyage to the Mediterranean), riding on horseback in the country was resorted to, and that exercise was found to excite the skin so beneficially as to keep it always pleasantly warm, and generally bedewed with moisture, even to the extremities of the toes; and in proportion to this effect was the advantage derived from it in relieving the chest, increasing the strength, and improving the appetite. A second winter was spent in the south with equal benefit; and in the summer of 1822, riding was resumed at home, and the health continued to improve. The excitement given to the skin by riding was sufficient to keep the feet warm, and to prevent even considerable changes of temperature from being felt; and rain was not more regarded, although special attention was of course paid to taking off damp or wet clothes the moment the ride was at an end. Strength increased so much under this plan, combined with sponging, friction, and other means, that it was persevered in through the very severe winter of 1822-3, with the best effects. For nine years thereafter the health continued good, under the usual exposure of professional life; but in 1831 it again gave way, and pulmonary symptoms of a suspicious character once more made their appearance. The same system was pursued and the same results have again

followed the invigoration of the cutaneous functions, and of the general health, by a sea voyage, horseback exercise, and the regular use of the bath. These have proved beneficial in proportion to their influence in keeping up warmth and moisture of the surface and extremities."

Dr. Combe, it will be remembered, finally sunk with consumption in the year 1848, and although his disease could not be considered as ever wholly cured, still the benefit he derived from the means he so judiciously adopted well rewarded him for the efforts put forth. And had his health not been thus improved, he could, in all probability, never have written those able and invaluable works which he afterward did.

*Inhalation.*—It is a matter of observation that those classes of persons who are, by their occupation or modes of life, compelled most to exert those muscles and parts about the chest—such persons, for instance, as the various out-door workers noticed in the tables of M. Benoiston, concerning the Parisian hospitals—are the most free from consumption. Singers, and public speakers, too, by reason of their exercise, often gain great power and volume of the chest and lungs. Men, also, who play much on wind instruments, tell us that, instead of being weak-chested, as when they commenced, they have grown vigorous and strong under the exercise, the general health, at the same time, becoming much improved.

There are various inhaling instruments on sale nowadays. They are got up mostly by charlatans, whose object is to fleece the pockets of the people. A common goose-quill is as good as any other inhaling tube. If the lungs are far gone, the patient must be careful to do no violence in this way.

*Clothing.*—In my work on "Consumption," I have given the following rules, for the guidance of consumptive persons, in the use of clothing :

1. Remember always, that we are much more liable to suffer from too great an amount of heat than from that of cold.

2. That our sensations deceive us on the side of warmth, and not of cold ; in other words, we can not acquire the habit of being habitually too cold, without feeling it ; but we may easily acquire the habit of being too warm, when our sensations do not tell us that we are so.

3. That soft-spun linen, worn next to the surface, is, of all substances, the most cleanly, healthful, pleasant, and at the same time most agreeable to the sensations, provided that, in connection, we are properly shielded from cold.

4. That we should always strive to wear as little clothing as possible, provided it be, at the same time, sufficient to guard the system properly against the changes of temperature to which we are subjected.

5. That whatever article is worn next to the surface, the cleaner it is kept, and the oftener aired, the better. We should always change our clothing at least morning and evening of each day. This latter rule is especially applicable to the sick.

I wish here again to enforce the remark, that all changes to the less amount of clothing can be made much more easily in connection with tepid, cool, or cold bathing, managed according to the individual's strength. Tepid water, even, is in fact, cooling to the surface, and is, therefore, to be ranked with the cold-bath, which is suited to those who are in very feeble health, to consumptive patients in the last stages of the disease, and to all who are greatly debilitated, from whatever cause. The less the strength, let it be remembered, the less cold can be borne.

It is found latterly, as post-mortem examinations have been made more frequently, that consumption is cured oftener than has generally been supposed. The disease when fully formed, it must be admitted, is, however, as a general thing, incurable. But knowing as we do that even extensive ulcerations in the pulmonary structure are sometimes healed, we should never give over our efforts at curing a patient till we are absolutely obliged to do so. The following case, written out by my former student, Seth Rogers, M.D., now of Worcester, Mass., is calculated to throw light on this subject. It was published in the *Water-Cure Journal*, in 1850.

JOHN BURDELL, late of the city of New York, a gentleman extensively known as a skillful dentist, and during the last nineteen years a strong and practical advocate of "Vegetarianism," was born in Oneida county, N. Y., in the year 1806. He was of medium height, slender form, small and sharp features, rather light hair, with blue eyes. He spent the first twenty years of his life in the country in active habits. But he was always considered a feeble boy; and it was supposed that he would die of consumption before the age of twenty. He had frequent attacks of sick headache, with nausea; was habitually constipated, and often experienced nightmare. But his worst prominent difficulties were colds. He was subject to them every winter of which he could recollect; and some of the attacks were severe upon his lungs. He had, besides, pulmonary hemorrhage repeatedly; and in after years, while residing in the city, he in some instances raised matter from the lungs, with streaks of blood. Partaking too freely of food, even of the simplest kinds, he thought had in some instances caused this effect.

John Burdell's parents were considered as being tolerably healthy

On his father's side there was, however, a predisposition to paralysis; his mother died of inflammation of the brain. He lost a half-sister, younger than himself, on his mother's side, with consumption.

At the age of twenty he came to the city, being at the time in poor health, with very sore eyes, probably of a scrofulous nature. From that time up to his death, he lived almost wholly in New York, and was always sedentary in his occupation and habits.

In 1831 he commenced experimenting upon the vegetarian diet, using, however, a moderate allowance of milk and fresh meat, for about one year. From that time to his death he ate no flesh, except possibly for a space of three weeks. In the whole period of his experiment he used milk, he judged, not more than one year in the aggregate, and then only in small quantities. He practiced bathing in cold water every morning, as regularly as the day dawned. This was commenced at the same time with the vegetable diet. He drank nothing but pure water, and that rarely, as his free use of fruits supplied the necessary amount of liquid to his system. He repeatedly passed six months at a time without for once tasting fluid, or feeling any desire therefor. He never tasted tea, coffee, or hot drinks of any kind, during the whole of the period in question. He slept on a hard bed with a hard pillow, retiring to rest punctually at nine o'clock. He slept soundly till about six in the morning, when he arose and took his daily bath. Winter and summer he always had his bed-room window open at night. He endeavored to exercise more or less every day in the open air, but he always regarded that he would have been much better off, physically, if he could have been more out-door and active in his occupation.

In 1836, he believed himself to be consumptive, and for this reason went to the island of St. Croix, where he remained five months. The common fever of the island was raging, and nearly all visitors suffered from it; many also died. But no attack whatever was experienced by him. At another time he also spent a few months at New Orleans, and in the Southern States. During both of these trips his diet consisted of bread, rice, fruits, and potatoes.

About eight years before his death, John Burdell was attacked, in the month of April, with a diarrhea, which at length became a dysentery, and nearly destroyed his life. He had been in the habit of eating (as he afterward believed) too many sour apples, nearly living upon them the whole winter. He had, besides, for a number of months, been living in a state of most unpleasant mental excitement. He had never experienced any bowel complaint whatever, after commencing the vegetarian experiment. At the time of this attack he regarded the homeopathic treatment as being the safest he knew of, and having an

acquaintance who was himself a practitioner of this school, he called him to prescribe, on the condition that no calomel or other mineral poison should be administered. The doctor, however, believing doubtless that it was his duty to deceive him in so serious a case, gave him both calomel and arsenic, and that in no small quantities. He had, moreover, reason, he said, to believe that he was over-drugged by an evil-minded person, whose duty it was, a part of the time, to give the medicine. At all events, the disease became much worse under the treatment, and severe dysentery set in. This continued for more than a whole month, and he remarked that the smell coming from the discharges was as offensive as that of rats poisoned with arsenic. As soon as he found out what he had been taking, he discharged the practitioner, and declared that he would take no more drugs. All of his extremities became nearly powerless, as is common from the effects of an over-dose of arsenic, and it was nearly two years before they regained their power as before.

At this time he was persuaded, for a short period, to break over the rules of diet he had so long and so rigidly observed. He ate a little beef-steak for about two weeks, but became so nauseated and disgusted with it that he could not be prevailed upon to continue the experiment any longer. Substituting for it Indian meal gruel, well boiled, home-made brown bread, and the free use of fruits, he grew rapidly better, in every respect, except the extremities.

After this dangerous illness he took but two meals a day, morning and evening, never touching food of any kind between times. Having ascertained, experimentally, the quantity of nutriment required, as he supposed, he weighed or measured the articles used for each meal. Thus he was enabled to be uniform in quantity. In summer his food consisted wholly of unbolied wheat-meal bread and fruits, according to the season. He regarded those of our own climate the best. In winter he partook mostly of potatoes and apples, using at times, however, other farinaceous articles. At some times he ate unleavened bread, at other times the leavened. He used no butter, neither spices of any kind, and, as before remarked, used no coffee or tea, or other hot drinks, nor had he ever taken alcoholic or fermented liquors. In September, 1849, he remarked that he could not then recollect when he had last taken milk or even water to drink. The juice of the fruits he had used so freely answered all the demands of thirst, and the total disuse of all animal food and spices had much to do, he regarded, in preventing thirst. It was many years, he said, since he had taken the slightest cold, or experienced the least nausea, headache, disorder of the bowels, or indisposition of any kind; and for the last seven years he had not

omitted a single meal. "He seemed," in the language of one of his friends, "in perfect health, with skin clear and mildly suffused with a natural tinge, in the place of the bloated flesh of drunkenness and gluttony. His mind was unclouded and active, his spirits gentle and cheerful, his conversation fluent, easy, and instructive. Altogether he appeared a very happy man. His wants, with his mode of life, were few, and required very moderate ends to meet them."

Much may be learned from this case, and the inference will naturally arise that much sickness, with its attendant calamities, is superinduced among mankind by unintelligent and beast-like indulgence in improper and pernicious articles of food and drink."\* During the cholera seasons of '32, '34, and '49 he remained unharmed. But in the dispensations of an all-wise Providence, there was soon to occur a great change in his physical health. He was probably born with the seeds of tubercular consumption within him. Providence always operates through the laws He has wisely established in nature—laws which are as fixed and immutable as His own existence. Doubtless John Burdell had for many a year, by force of physiological habits (faulty although they were in some respects), kept at bay the monster disease which was ready at any moment to corrode the very vitals within him. About the middle of 11th month (1849), he took a cold, as he informed me about two weeks thereafter; cough and expectoration ensued, but to a small extent only. He continued in his business and other habits as usual, but from the first doubted whether he should ever recover from this attack. In the hope of religion he was calm and cheerful in mind, and experienced no bodily pain.

At the urgent request of a medical friend, in the early part of his illness he daily ate two oysters for nearly three weeks, although he was convinced that the cough and febrile symptoms were aggravated. After ceasing the use of the oysters, his fever, expectoration, and cough gradually decreased. Until within two weeks of his death he was able to walk and ride as usual. During the remainder of his life his strength became less and less, until the 11th of 3d month, at 6 P.M., he expired without a struggle.

Now it has been, and no doubt will be currently reported that the death of this gentleman was caused or hastened by starvation. For the satisfaction of all who feel an interest in his dietetic course, and to refute the absurd notion entertained by those who neither investigate nor understand the physiological laws which govern the human system it was thought proper by his friends to fulfill a request of the

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\* See Appendix to Lambe on "Vegetable Diet."

deceased, that a post-mortem examination be made. Accordingly, fourteen hours after death, Dr. Shew, assisted by myself, examined minutely the entire viscera, and found all the organs in a healthy condition, except the lungs. There was slight hardening and enlargement of the pyloric orifice, also the appearance of partial congestion of the right kidney; but neither of these deviations were sufficient to cause much disturbance. The liver, heart, stomach, intestines, pancreas, and spleen appeared perfectly healthy.

The right lung adhered at the summit, and full half of the upper portion was one tuberculated mass. Near its center, in front, was a cicatrix about the size of a half-dollar. The left lung was even more diseased than the right. So great had been the inflammation of the pleura many years before, that this lung was attached nearly its entire depth to the left wall of the thorax. With the exception of about one tenth of the inferior portion, there were tubercles and caverns to such an extent as rendered it entirely unfit for use.

In regard to the treatment of John Burdell's case, it will be readily inferred that we did not at any time hope to effect a radical cure. The treatment was wholly palliative, it being simple washings in water at moderate temperature twice daily. These baths were always refreshing, the frequency of the pulse was reduced, and the night-sweats were so slight as to be scarcely perceptible at any time; usually no symptoms of the kind appeared. And here let me remark, in all deference to the opinions of others, that in cases like this, a very slight treatment only is admissible.

The peculiarities of this case were, first, the entire absence of pain and bodily distress of every kind; second, the almost constant freedom from night-sweats; third, that no diarrhea occurred; fourth, that the limbs did not at any time swell; and fifth, that the mind remained clear, and the spirits undepressed.

#### INFLAMMATION OF THE LUNGS—LUNG FEVER—PNEUMONIA—PNEUMONITIS—PULMONITIS—PERIPNEUMONIA.

This dangerous disease assumes various forms, which are named according to the nature of the case. *Lobar pneumonia* is that in which a considerable portion or the whole of the lung is affected. *Lobular pneumonia* is that in which small portions of the lung are inflamed, there being healthy portions left between them. This disease is usually confined to one lung, but in some cases both of the organs become affected, in which instance it is called *double pneumonia*. There is also what is called *typhoid pneumonia*, signifying that the symptoms become typhoid, and *bilious pneumonia* when the disease is complicated in the

bilious derangement. *Chronic pneumonia* is that which sometimes follows the acute form of the disease, although some doubt the existence of any such affection.

*Causes.*—Too sudden exposure to cold may be ranked as the greatest and most frequent cause of this disease. If the exposure takes place when the body is perspiring and over-fatigued, it is particularly apt to induce it. Intemperance is very apt to occasion pneumonia. It is believed, also, too much speaking or singing may bring it on, although, in such cases, the general fatigue induced has probably more to do with it than the mere exercise of the lungs.

In children, pneumonia sometimes follows or comes on in connection with measles and hooping-cough, especially if these diseases are improperly treated. In adults it sometimes occurs in connection with fevers of a low grade.

Lung fever prevails most in cold countries and during the cold season. It is believed by some that a dry, cold residence is as favorable to the disease as a damp, cold region. This, I judge, is an error, because cold and wet combined are admitted to be more apt to induce inflammation generally than dry cold. The disease is more apt to occur toward spring than in the early or mid-winter, which would seem to prove that cold and wet together are far more favorable to the development of the disease.

*Symptoms.*—These resemble, in most respects, those of acute bronchitis. In a common and well-marked case there is high general fever; pain, either dull or acute, in some part of the chest, which is always aggravated by cough, and more or less dyspnoea during the whole of the earlier stages of the disease. The respiration and pulse become hurried in proportion to the general fever present. The local symptoms may precede the general, and *vice versa*. At first there is little or no expectoration with the cough which always exists; afterward it becomes more free and is rust-colored or reddish, and yellowish or of a mucus color. The more free the expectoration becomes, the more the breathing and other symptoms are relieved. The patient, if a female, may be rendered very nervous by the disease, and have troublesome twitchings of the limbs, which it is not possible for her to control.

*Terminations.*—This disease ends in *resolution*—passing away of the inflammation; in *suppuration*—the formation of pus in the lung; or in *gangrene* or *mortification* of the affected part. The first of these is the safest; the second, less so, and the last absolutely fatal. Some, however, affirm that gangrene of the lung is never caused by inflammation of the organ, but assert that the inflammation is only an attendant symptom.



Pneumonia usually lasts from one to three weeks, after which the patient may be some time in regaining his full strength.

*Treatment.*—Hydropathic physicians have had but little to do in treating this affection, partly for the reason that those who believe in water-treatment are mostly bathers in cold water, and cold bathing is one of the most effectual of all known means in warding off its attacks. But we do know, however, by actual experiment, as well as by analogy, that this dangerous inflammation may be combated in a most satisfactory manner by this treatment. Not, indeed, that every possible case can be cured, because the disease may be so complicated with other affections, and with so depraved a state of the system, that it is impossible for any thing to cure it. But in the most unfavorable cases, I am confident that water, properly managed, will give greater relief than any other remedy.

In most instances, if we can have the case at the very first, or at farthest before it has progressed much, we can cure pneumonia with water so quickly and so effectually that the common observer will be inclined to believe that little after all was the matter with the patient. I have myself in cases of children, over and over again, cured a real inflammation of the lungs, as it were, in a single day; upon which some old friend of the family, a physician, having been told of the circumstance, he has observed: "Why, that could not possibly have been a case of pneumonia, for it is not possible to cure it so quick!" So the medical man in his wisdom honestly believed, no doubt. But why such men do not set about the task of learning something respecting the effects of water as a remedy for severe and dangerous inflammations is more than I can tell. The disease, then, is to be treated like a most violent inflammation. This runs very high the first day, the pyrexia also being great. According to the symptoms, we use the wet-sheet pack, folded wet-sheet, wet compresses, shallow baths, and rubbing wet-sheets. Water should also be drank freely, little and often, even if there is no thirst; but we need not over-chill the system, so that the water may be taken tepid or even warm. When the blood internally is in such a fret and fever, as we may say, it is of great service to dilute it; this is the reason why we direct so much to be taken. Clysters, too, are useful in the same way; and where there are nervous twitchings, the abreibung is the great remedy. If the feet become cold, warm applications are to be made. The diet for some days must be spare, and of the watery kinds.

The pain should be kept down as much as possible from the first. It is better to remain in the entire or the folded wet-sheet most or all of the time for several days, changing it, of course, according to the

fever and the symptoms, rather than allow the pain to go on reducing the strength. I repeat, MAKE THOROUGH WORK IN QUELLING THE PAIN.

#### BRONCHITIS—PULMONARY CATARRH—COLD UPON THE LUNGS.

Bronchitis is an inflammation of the mucous membrane that lines the bronchial or air-tubes of the lungs. It is a very common affection; whenever there is a cold upon the lungs, however slight, there is more or less bronchitis present. Hence it will be seen that the disease varies almost indefinitely in severity; often it is comparatively but a trifling affair, while at other times it becomes one of the most dangerous of all inflammations.

*Symptoms of the Acute Form.*—In a severe case these are essentially the same as those in pneumonia, or inflammation of the substance of the lungs, except that the pain in bronchitis has more the character of soreness than of real deep-seated pain, as in pneumonia; and this soreness is for the most part located in the upper and front part of the chest, whereas in pneumonia it is more apt to be at the lower part of the lung, that portion being the first to become inflamed in that disease. In bronchitis the expectoration has not that thick, tough character that it has in pneumonia, nor has it that rusty appearance which is so characteristic of the latter disease, although it may sometimes be streaked with blood. The expectoration when it once begins in bronchitis is much more abundant than in pneumonia.

*Treatment.*—This, in the severer forms of the disease, is the same as that for pneumonia, to which the reader is referred. Pneumonia and bronchitis often occur at the same time.

In the treatment of a *common cold on the lungs*, which is a slighter form of bronchitis, a great variety of means have been resorted to. The well wrung abreibung is a most valuable remedy. Wet bandages or the chest-wrapper should be freely used, day and night. The vapor-bath, properly managed, is also highly serviceable. So also the leintuch. The throat and chest should also be rubbed with the cold, wet hand, until it is completely red, as often as the patient can find time to do it. Spare diet, and even total abstinence are highly useful. Sometimes a bad cold can be cured in a single night by sleeping warmly in wet clothing the whole night. A single vapor-bath will also sometimes cure a cold. A sweat in bed, by drinking a large quantity of cold water, is a favorite remedy with some; but drinking a large quantity of warm water would be still better. In some cases, do what we will, the cold must run a certain course, although it may be shortened and the symptoms mitigated by appropriate treatment.

*Priessnitz's Treatment.*—The modes of treatment recommended by Priessnitz, in cases of colds, difficulties in the throat and chest, from whatever cause or causes, are exceedingly simple, and at the same time effectual for good. We have before us a work entitled "Six Months at Graefenberg," by Mr. H. C. Wright, of Philadelphia (published in England), a very accurate writer and observer. This author had himself been for years afflicted with serious difficulties of the above-mentioned kinds. He had, likewise, been in the habit of much and long-continued public speaking. He tells us that for years before going to Graefenberg, he was, as is the custom, wont to eschew the fresh air as much as possible. Flannel shirts and drawers, and a closely fitting shirt-collar and a neckcloth, were worn, and, whenever the weather seemed to require it, a fur muffler, or a large silk or worsted handkerchief over the chin and mouth, to exclude all fresh air from the back of the head and neck, the throat and lungs. He was exceedingly sensitive to cold, and though long accustomed to general ablutions with cold water, the exclusion of cold air, with a view to the preservation of health, had become an object of very particular attention. Heavy clothes and overcoats were worn to protect the body from the air and its free circulation over the surface. He continues: "I now look back with astonishment at my folly; and the more so, because the days of my childhood and youth were chiefly spent in the open air, in the backwoods of western New York. Calm and storm, cold and heat, rain and sunshine, were all alike to me then; and many times since I attained my twentieth year, have I slept with my windows open, in the severe winter nights of New England. But for the last three years, since my lungs began to be affected, I changed my habits entirely, and, by the advice of medical friends, took every precaution against exposure to the air."

Mr. Wright further tells us, that, when he went to Graefenberg, away went the flannel shirts and drawers, and silk, worsted, and fur mufflers, and Priessnitz advised him to be in the open air as much as possible, like the other patients. We have ourselves seen at Graefenberg poor, weak bodies, who had for years been wedded to those "comfortable" things, mercilessly stripped in the manner described by Mr. Wright. And what may appear strange is, that probably nowhere in the world can there be found the same number of persons as at Graefenberg, with less of coughs and symptoms of cold in the throat or lungs. The freedom from coughs and colds among Priessnitz's patients is notorious. Be it remarked, also, that there is in the winter season much of damp, fogs, and winds; so that, according to the popular notions on this subject, persons would be much subject to the diffi-

sulties in question. But there is among the profession, as well as the people, much error in reference to the effects of wind and damp. We find that one of the best possible things for cough and cold is to go to sea. Consumptive persons, even, are recommended often to go sea voyages, and there appears in cases generally, whether curable or incurable, to be a manifest improvement in so doing. We have known persons, repeatedly, to have a severe cold, attended with cough, on going to sea to become very soon cured. Now, it should be understood that there is, besides the winds at sea, a great deal of moisture. The atmosphere is, in consequence of evaporation, at all times completely loaded with humidity; and this is not *saltish*, as many suppose, but fresh; for we know that salt is of great specific gravity, and does not rise. In the manufacture of salt, by evaporation in the sun or by boiling, the mineral is left behind, while the pure water passes off. We see, from the above facts, that wind and moisture are not necessarily so deleterious as is generally supposed; but, on the contrary, that they are, under certain circumstances, extremely favorable to health.

If a person has an incurable disease of the lungs, Priessnitz would, of course, be very careful in reference to changes of whatever kind. The cases we have referred to he regarded as curable. Such persons can make much greater changes with safety, than is generally supposed. Even in cases of incurable disease of the lungs, people are perpetually injuring themselves by too much clothing, confinement in close, overheated, and illy ventilated rooms, sleeping upon feather beds, down pillows, etc. Now in these, often great good may be done in the way of mitigating the disease. But all changes should be made with proper caution, and according to the dictates of an enlightened experience. Inasmuch as the water means, diet, etc., are the best possible for cure, so also, properly managed, are they in mitigating the sufferings arising from incurable disease.

Before leaving Graefenberg, Mr. Wright prepared, in writing, a list of questions, which were proposed to Priessnitz, the answers to which were taken down upon paper at the time. Some of these questions were as follows:

*Wright*.—In cases of severe cold on the lungs, attended with much coughing and expectoration, what should be done?

*Priessnitz*.—Rub the chest and throat with cold water, holding, at the same time, some water in the mouth. In cold climates, the wet bandage around the throat would be of service occasionally. In warm climates, washing and rubbing alone are better.

*Wright*.—In cases of inflammation and soreness of the throat, attended with hoarseness and difficulty in speaking?

*Priessnitz*.—Friction, washing, and the application of wet bandages.

*Wright*.—In cases of long attendance and speaking at public meetings, in hot, close, crowded rooms, and then going out into the chilly night air ?

*Priessnitz*.—The rubbing sheet, washing and rubbing the head and throat well, and the use of the foot-bath.

*Wright*.—When troubled with shooting pains across the chest, occasioned by long speaking at a time ?

*Priessnitz*.—Take rubbing sheets, and rub the throat and chest with water.

In regard to friction, Mr. Wright judiciously remarks, "that it is worthy of special notice that Priessnitz never orders the rubbing to be done with brushes, flannels, or even linen towels. He never applies flannels and brushes to the skin for any purpose; linen is only used for wiping the surface dry, and, even in this process, the rubbing should be gentle. He wishes to have the skin kept as smooth and soft as possible; and hence his disuse of flannels next the skin, and of brushes and hard substances in rubbing. He recommends that the hand only should be used; and it is not possible to be long under his treatment, and to enjoy the delicious sensations resulting from a clear, smooth, soft skin, the almost invariable result of the cure, without being convinced of the correctness of his practice in this respect."

*Chronic bronchitis* is a very common disease, and is very apt, moreover, to lead to pulmonary consumption. I shall not in this place enter particularly into details of the treatment suitable for chronic bronchitis, because it is the same as that for consumption in its earlier stages. I will here merely remark that the general management in this complaint should be that which is best calculated to fortify and invigorate the general health.

#### LARYNGITIS—INFLAMMATION OF THE LARYNX.

This is often a most dangerous disease. In no part of the respiratory passages does inflammation of so small a portion produce any thing like the dangerous results that are observed in this disease. It may be both acute and chronic.

*Symptoms of the Acute Form*.—First there are rigors, followed by pyrexia, and usually by some degree of tonsillitis. There is hoarseness; a dry, husky, convulsive cough; pain in the larynx; constant secretion of a glutinous mucus; difficulty of deglutition and respiration. As the disease progresses, the febrile symptoms grow more severe in all respects; afterward "the countenance becomes pale and anxious; the lips livid; the eyes suffused; the nostrils expanded; the

pulse frequent, feeble and irregular; the voice reduced to a whisper or lost; the throat often edematous. There is extreme restlessness, jactitation, urgent fear of suffocation, sleeplessness, or if the patient dose, he wakes in dreadful agitation, gasping and struggling for breath. Delirium and coma ensue, and death takes place in from four to five days, or the patient dies at an earlier period asphyxiated."

*Causes.*—Previous attacks of sore throat, intemperance, abuse of mercury, and too frequent and long-continued exertions of the voice, predispose a person to this disease. Its exciting causes are: "exposure to wet and cold; extension of inflammation from the tonsils or salivary glands; swallowing scalding or corrosive liquids; inhaling acrid gases or hot air; extension of inflammation in erysipelas, scarlatina, small-pox, and measles."

*Prognosis.*—Dr. Hooper observes: "Most unfavorable; more so when the disease has already lasted some time with an increase of the symptoms, when the dyspnœa is extreme, the convulsive fits of frequent occurrence, the face livid, the circulation languid, and the head affected. On the other hand, a decrease of dyspnœa, a free expectoration, an improved aspect of countenance, and greater ease in swallowing, are favorable signs."

*Treatment.*—This must be of the most vigorous kind, according to the severity of the case. The pyrexia must be kept subdued, and powerful cooling applications kept up constantly at the throat. Even ice between folds of wet linen, and pieces of ice held in the throat, should be resorted to in violent cases. The extremities to be kept warm.

There is probably no one disease which demands greater care and vigilance on the part of all concerned than that here spoken of.

In *chronic laryngitis* there is hoarseness, sometimes increasing till the voice is reduced to a whisper or quite lost, dry, husky cough; pain and soreness in the larynx; dyspnœa by turns; in confirmed cases ulceration of the part affected.

It is caused by the acute form of the disease; cold; intemperance in eating and drinking; excessive exercise of the vocal organs; inhalation of dusty or otherwise impure air; syphilis; abuse of mercury; tobacco.

This latter substance demands more than a passing notice in this place. Dr. Horace Green of this city, who has, probably, had more experience in treating disease of the throat, than any other living practitioner, speaks thus on the subject: "As an exciting cause, the use of tobacco, in my experience, has proved a powerful agent in the production of follicular disease of the throat. Acting as a stimulant

directly and constantly upon the mucous follicles of the fauces and throat, and greatly increasing as it does the secretion of these glands its employment as we should conclude *à priori*, must have a direct tendency to develop the disease, especially if a predisposition to the disease exists; hence it has occurred to me, to notice that of a great number of cases of throat-ail which have come under my observation, a large proportion of them have taken place in individuals who had been, or were at the time, in the habitual use of tobacco. \* \* \* Not only has the use of tobacco, in any and all its forms, proved to my experience an exciting cause of laryngeal disease, but when its employment has been persisted in during the treatment of any case, I have found it impossible to restore such to perfect health."

Among the exciting causes of this disease, prolonged action of the vocal organs holds a conspicuous place. Hence its frequency among singers, actors, lawyers, and preachers; and, in later times, it has become so common in the United States with the latter, as to be known by the name of *clergyman's sore throat*. Why the disease should prevail more among this class than others who use the vocal organs at least as much as they, is a question not easily solved. Dr. Chapman has suggested that clergymen, as a class, are of feeble constitutions, which circumstance may have originally led them to embrace their avocation, and hence that they are more liable to such derangements than more healthy individuals. Another explanation has been offered by Dr. Stokes, that the clergyman begins to exercise his vocal organs at a much earlier period than the lawyer, for example. In another part of this volume I have given some reasons why the health of clergymen is apt to suffer more than that of most men. And the same remarks will also hold good in this connection.

*Treatment.*—It has become very fashionable of late to apply a strong solution of the nitrate of silver to the fauces and larynx in this disease. In some cases relief is obtained, if we judge from the testimony of patients; in others, no good is accomplished, and in not a few instances the patient appears to be made worse. My own opinion regarding this treatment is unfavorable; first, because of the facts respecting it; and second, because chronic laryngitis is generally, if not always, a constitutional disease. I am of the opinion moreover, that nitrate of silver has a tendency in these cases to drive the disease downward upon the lungs, thus causing consumption, which is the thing most to be feared. A large proportion of all cases of chronic laryngitis have thus far ended in fatal pulmonary disease.

The general plan of treatment, then, should be such as is best calculated to restore the constitutional health. Patients of this class are

always more or less dyspeptic. The state of the stomach and bowels should receive special attention. The management should be tonic throughout. Locally frequent garglings with tepid, or even warm water will be useful. The throat and chest should at the same time be often washed and rubbed with the hand wet in cold water. The *stimulating* compress is also useful about the throat.

#### SUPPRESSION OF THE VOICE—APHONIA.

This is a nervous disease in which the organs of speech are not affected by inflammation, or at least not necessarily so. It is on the whole rather frequent. If the subject is a man, the voice becomes puerile, feeble, and of a higher pitch. It also may become hoarse and croaking, so that a boy or a woman will speak like a man. In some cases the voice becomes a whisper only. The attack may be sudden or gradual.

*Causes.*—Often aponia is only a form of hysteria. It may follow long-continued, exhausting disease, especially if it have been treated by severe drugs. It may be brought on by fear, anger, or fright, the same as hysteria. It may also be sympathetic with old serious ailments of the chest or abdominal organs. Its great cause is nervous debility.

*Treatment.*—The disease often cures itself spontaneously, even in spite of the powerful drugs, irritants, etc., that have been resorted to. The great thing is to restore the general health; and it is of prime importance for the patient to understand this, because a cure always goes on much better if the subject has a clear understanding of the why and wherefore of what is done. Read in this connection the treatment laid down for hysteria. If the attack is sudden, it should be treated like the acute form of that complaint, and so, also, the reverse.

#### NERVOUS COUGH.

I am to notice in this place a form of cough which often happens without disease of the chest or throat. It is generally a dry cough, and periodical, and is often checked by eating. It should be treated on the same principle as aponia.

#### PULMONARY ABSCESS—ABSCESS OF THE LUNG.

Pulmonary abscess sometimes arises from the action of mercury. This metal has a great tendency, when taken in excess to cause abscess and ulceration in different parts of the body. This is, probably as apt to happen in the lungs as any other part.

Abscess of the lung is sometimes connected with tubercular disease



at other times, not. The abscess occurs just as it may in any situation, and without any apparent cause, although a cause must exist.

Extensive abscesses of this kind are quite sure to destroy life; but smaller cavities do not unfrequently heal, as we know by post-mortem examinations.

*Treatment.*—Pulmonary abscess is to be managed according to the severity of the symptoms, just as we would in a case of consumption. If the disease is cured at all, it is by force of nature; all that we can do, is to aid her in her operations, that is, to mitigate the symptoms as far as possible and support the strength

#### PULMONARY GANGRENE—GANGRENE OF THE LUNG.

Singular as it may appear, gangrene or mortification of the lung is seldom the effect of active inflammation, as it so often is in other parts of the system.

This disease happens but seldom. The symptoms are similar to those of a confirmed case or phthisis. In some cases—perhaps a majority—only a portion of the lung becomes affected. Pulmonary gangrene is not necessarily fatal, as might be supposed. “Nature is sometimes sufficient, when supported by good nourishment,” observes Dr. Elliotson, “to get an individual through an affection of this description, and to cause a separation of the gangrenous part.”

#### FETID OR FOUL BREATH.

Foulness of the breath may arise from various causes. It may arise transiently from something disagreeable being taken into the stomach, which finds its way through the circulation to the lungs, where it is thrown off. If a man eats onions, it is not from the *stomach* that the odor comes when we smell his breath, but from the air-passages of the lungs, the blood giving off the odorous principle through the delicate structure of these parts. Nor need we wonder at this when we remember that the air-cells of the lungs are estimated to contain a surface of *fifteen hundred square feet!* The bronchial membrane is, in fact, one of the great outlets by which the system rids itself of unfriendly substances that find their way into the blood. Carious teeth may, also, cause much foulness of the breath; so, also, a diseased state of the jaw-bone. Chronic ulceration of the tonsils sometimes taints the breath, although not often.

*Treatment.*—The great thing, of course, is to get rid of the cause. If foul breath arises from a diseased tooth, *that* may be extracted; or, if that is objected to, plain, vegetarian fare, with the daily use of soap and brush, will do much toward removing the difficulty. If ulcer-

ation is the cause of the trouble, *that* must be cured. In all cases, simplicity in diet, and frequent and daily gargling and cleansing the mouth and throat, are useful means.

#### PLEURISY—PLEURITIS—INFLAMMATION OF THE PLEURA.

Pleurisy—inflammation of the lining membrane of the chest and covering of the organs contained within it—is believed to be, when strongly marked, the most violent of all internal inflammations. It is, however, a less dangerous disease than pneumonia and bronchitis.

*Pleurodynia, false pleurisy, or bastard pleurisy, or a stitch in the side,* is a rheumatism of the intercostal muscles. This affection may be distinguished from true pleurisy by pressing upon, or between, the ribs over the seat of the pain. If the case is real pleurisy, it will require hard pressure to increase the pain; if it is false, a slight pressure is sufficient to aggravate this symptom. There is also little or no general fever in pleurodynia, whereas in true pleurisy the pyrexia is distinctly marked.

*Symptoms of the Acute Form.*—The attack generally comes on with a chill, followed by high fever; at the same time there is a very acute lancinating pain in one side of the chest, which is much increased by the least coughing. The respirations are short and frequent; the cough is dry, with little or no expectoration.

Pleurisy is known from pneumonia by the sharp, cutting nature of the pain, and by the patient's feeling the pain to be of a more superficial or less deep-seated character than it is in the latter disease.

*Treatment.*—Pleurisy is treated on the same general principles as pneumonia. The disease can, I think, as a general thing, be cured in a much shorter time than either bronchitis or inflammation of the substance of the lung.

In some cases, when the pain is of an uncommonly sharp character, I am not certain but that very warm applications over the affected part will relieve the pain soonest. Singular as it may appear, these warm appliances sometimes lower the action of the pulse. The good effect of such applications is caused on the principle of counter-irritation. If we nearly or quite scald, or if we blister the surface over the part where the pain is, we remove it more or less, and may do more good than harm by the local application of heat. In false pleurisy, warmth thus applied is unquestionably a good remedy; but in true pleurisy, if we attempt the hot applications, we must take care that we do not increase the general fever. If we do this, we do harm in the end. As a general thing, the cold treatment is not only the most effectual in relieving the pain, but preferable in every respect.

*Adhesions of the chest* often take place as a result of this disease. Lymph is thrown out from the pleura, which is a serous membrane; and this causes the lung to adhere to the ribs. These adhesions are probably never removed, although a person may enjoy good health for a long period after their occurrence.

#### ASTHMA.

The term asthma has been used too indiscriminately in diseases that are attended with difficult breathing. There are several affections of the lungs in which respiration may be asthmatic, that is, difficult, but in which it would be improper to call the disease asthma, because the difficulty of breathing is only a secondary affair. Asthma may be connected with other diseases—with bronchitis, for example; but in this case the bronchial inflammation is of minor importance, the asthmatic symptoms being the more prominent. It is only when such is the fact that it is entitled to the name of a separate affection. This disease may come upon any one. It is also very apt to run in families.

Asthma consists in a constriction of the minute bronchial tubes and the myriads of air-cells in the lungs. It is this constriction that renders the breathing so difficult in the disease. It has generally been considered a spasmodic affection; but it has not been fully demonstrated that it depends on muscular contraction, although it is supposed that such is the fact; it is generally spoken of as being of spasmodic character.

*Duration.*—Asthma when uncomplicated with other diseases, sometimes continues for a long period. It sometimes keeps on even to quite an advanced age, not appearing to injure the health at all in other respects. It is doubtful, however, whether it may ever prove beneficial in warding off other diseases, as some have supposed. When one has pure asthma, however, he may feel a consolation in knowing that he has not a worse disease.

*Manner of Attack.*—This disease sometimes comes on suddenly, without any previous warning whatever; oftener, however, there are for a day or two, or more, symptoms of indigestion, loss of appetite, headache, languor, drowsiness, disinclination to go about, etc. It is more apt to occur in the night, between the hours of ten and two. In a bad attack, the patient may be heard wheezing and gasping as for his life. Inspiration is much more difficult and painful than expiration. In many cases the lungs appear to shrink a good deal, which we know from the fact that the chest becomes contracted, and the epigastrium hollow, showing an unusual elevation of the diaphragm. If the case is at all a severe one, the patient feels as if he would suffocate, and in

his efforts to get breath rushes, perhaps, to the nearest window, opens it as wide as possible, and leans over the sill in his attempt to get breath. Dr. Forbes has known a poor patient suffering from asthma, not merely to remain by the open window all night, but to lean over it, resting on the sill, with the arms hanging on the outside for several nights together, and this even in winter. Coldness, it should be remembered, is the greatest of all known means for relieving the symptoms of this disorder; and hence it is that patients, however delicate, are not, while the paroxysm is upon them, at all liable to injury from it. The reason of this fact is, that the disease powerfully affects the whole nervous system; and while a high degree of nervous excitement is present, a remedy which might be highly improper, and even dangerous at one time, may prove as highly salutary at another. The pulse is variable; often small, feeble, and irregular; and there may be palpitation of the heart. The extremities are usually cold, and the difficulty to get breath sometimes brings out perspiration upon the upper parts of the body. The face may be either pale or flushed, or both alternately. The countenance exhibits great uneasiness and distress. These attacks come on seldom or often, as the case may be. No disease, probably, is more varying in all its symptoms than this.

*Effects of Climate.*—It is often remarked in medical works, that some asthmatics bear a dry climate best, while others find a damp situation more favorable. Some asthmatics, it is said, find themselves better in the city than in the country, and that they reside, perhaps, in a most filthy, damp, and crowded street in preference to a cleanly and airy situation. Some, it is said, are better upon a mountain or a high hill, while others prefer a damp, foggy valley. In order to account for these apparent discrepancies in the experience of asthmatic patients, we must recollect that such generally possess high, nervous susceptibility—they are, in short, nervous. This being so, the mind has a good deal to do in the matter. If a man imagines a particular place disagrees with him, it is quite certain so to do. It is to be remembered also, that asthmatic cases vary very much in character, and that the disease is often connected with some pulmonary derangement. If a man has bronchitis, for example, in connection with asthma, he will be very apt to find the air of a high or mountainous situation too much for him. The still air of the city might certainly at first as well, perhaps, as afterward, agree with him better. So, too, when the lungs are weak and susceptible to atmospheric changes, if a patient should go to the sea-shore when the breezes are fresh, his asthma would be very apt to become worse, while, on the other hand, one who has asthma alone

would be quite certain of being benefited in such a situation. In these ways, therefore, we can account for these apparent anomalies. In every individual case, if we can but ascertain what is really best for the constitution at large, we shall know also what is best for the disease in question.

*Treatment.*—A great variety of means have from time to time been resorted to for the cure of this troublesome affection. Dr. Cullen, who regarded it as owing to a state of turgescence, or over-fullness of the blood-vessels, recommended bleeding in connection with various other means of reducing the system; or, as it has been expressed, taking off the congestion of the blood. It is very certain that blood-letting, especially in the more early stages of the disease, is sometimes productive of temporary relief. It should be remembered that this remedy, so called, does not remove the *cause* of the ailment; and that it is in most cases, at least, liable to harm the constitution far more than to benefit it. "Bleeding" (in asthma), says Dr. Good, "demands a nice discrimination, and is rarely to be recommended in either species of the disease. The relief it affords, even in dry or convulsive asthma, is very temporary; and Dr. Cullen allows that it can not be persevered in without undermining the constitution, and laying a foundation for dropsy." Dr. Bree, a standard authority, regards bleeding as a doubtful operation in the first species of asthma, and as always imprudent in the second. "I have repeatedly," says he, "directed it in the second stage, but I have never had reason to think that the paroxysm was shortened an hour by the loss of blood, and I have often been convinced that the expectoration was delayed, and that more dyspnœa remained in the intermission than was common after former paroxysms. In old people, who have long been used to the disorder, it is certainly injurious." The celebrated Dr. Forbes also, in speaking of blood-letting in asthma, pointedly observes, "It never puts an end to the paroxysm, much less does it cure the disease;" and "that its habitual employment in an affection of frequent recurrence, can not fail to be highly injurious."

In the use of other powerful remedies, physicians have been scarcely more successful than in bleeding. It must be admitted, however, that medicines which tend to nausea and vomiting do often produce material relief for the time, in both the acute and chronic form of the disease. Narcotics, too, have in some striking instances proved beneficial; but in making these admissions, it is not to be inferred that I do not believe in the use of still better and more efficacious means. Nor is it to be forgotten that narcotic agents are always attended with danger in the treatment of this disease. Says Dr. Wood, "The death

of asthmatic patients has been ascribed in repeated instances to the use of narcotics. Stramonium is one which enjoys the highest reputation. It is employed almost exclusively by smoking the dried leaves or stems, like tobacco. The relief which it affords is sometimes great and immediate. It is most efficient when used at the commencement of the paroxysm. *But it not unfrequently fails, and has sometimes proved highly dangerous, and even fatal in its effects by inducing coma.*" I have italicized the passage which I wish to be particularly observed. I wish it to be distinctly understood, that while I admit the good effects of narcotics in some cases of asthma, I at the same time hold that we have in water-cure a more efficient remedy than all narcotics, all drug substances and bleeding combined; more effectual even for the immediate purpose of giving relief, and incomparably more so for preventing an attack and for thoroughly curing the complaint.

In treating the asthmatic fit, the abreibung, well wrung and faithfully applied, is the great thing. Repeat it two, three, or twenty times in succession, as the case may need. There is no danger of doing harm, or of giving the patient a cold, so long as the nervous excitement is upon him and the difficulty of breathing continues. If the sheet can not be had, a good washing with towels, the water always cold, is very useful. With the cooling means in any way we can hardly go amiss with water, but the abreibung is the great thing in reducing spasms of whatever kind. The wet jacket or chest-wrapper, or wet towels about the chest, are all useful, if the weather is not too hot. When that is the case, we must depend upon the washings simply. "The more cool, fresh air we allow the patient the better. If the case is not one of pure asthma, the treatment is yet essentially the same, because the great thing for the time is to reduce the fit.

The *warm-bath* is also beneficial in asthma of the spasmodic or nervous kind. In other cases, however, not much benefit is to be expected from this remedy, although an occasional resort to it would be advisable. Still it will be found, as a general fact in the management of this obstinate malady, that cold water, managed according to the exigencies of the case, will prove far more successful than either the tepid or warm.

The *vapor-bath* has also had its advocates in asthma. Dr. Kentish (as quoted by Dr. Bell) mentions a case in which this remedy was directed in alternation with a Bruxton bath (82° Fahr.), the temperature of this latter being gradually lowered until it was a cold-bath. A perseverance in this course for six weeks was followed by entire relief, and a subsequent exemption from the disease.

*Electro-magnetism* is said to have been employed with success in this disease. I have no doubt of the fact, but can not speak from personal experience of the value of this method.

*Prevention of the Fit.*—I have remarked that in many cases the asthmatic fit is preceded by certain symptoms of indigestion, by which it is known that an attack is about to come on. In such cases the *hunger-cure* may be brought into requisition with great benefit. One, two, or three days' fasting, that is, living on pure water, with perhaps a mere trifle of nutriment—although it is perfectly safe to go that long wholly without food—would be a most effectual method of warding off the paroxysm. No treatment in the world can be more safe or salutary. So much is this disease connected with indigestion, that many a fit is brought on by a hearty supper taken upon an undigested dinner, whereas if the dinner had been light, and the supper omitted altogether, the attack would have been avoided.

But the most important thing in asthma, is how to *cure* it. Merely quelling a fit is of little importance comparatively, if it is yet constantly liable to return. It is the *general* treatment, then, that which is to be followed from week to week and month to month, that will most test the skill of the physician, and the patience and perseverance of the patient, in treating the complaint. I can not, of course, here enter into an explanation of the various measures that are to be resorted to, but simply remark that they should be such as are calculated in the best possible manner to fortify and invigorate the general health. I must also remark that I consider the vegetarian diet as a most valuable measure—I mean when it is not abused, as is generally the case, by the inordinate use of sweets. But I do not say, remember that such diet can cure every case, for nothing can do that. But it is of great advantage sometimes to know what is best calculated to *mitigate* a disease, as well as what is best to cure it.

*Asthma cured by Diet.*—John Smith, C. M., who wrote, nearly 150 years ago, a work entitled "*Curiosities of Common Water*," says of asthma, "I will add an account of a man in the parish of Shoreditch, who was desperately ill of an asthma, or shortness of breath, and deep consumption, for which he had tried many remedies to no purpose. At length he was advised by a physician, being poor, to drink no other drink but water, and to eat no other food but water-gruel, without salt or sugar; which course of diet he continued for three months, finding himself at the first to be somewhat better, and at the three months' end he was perfectly cured; but, for security's sake, he continued in that diet a month longer, and grew strong and fat upon it. But this diet he had no mind to till he was thoroughly hungry and then he ate it

with pleasure; in which, perhaps, consisted the best part of his cure, it being an advantage to health never to eat till hunger calls for food !”

#### HOOPING-COUGH.—PERTUSSIS.

HOOPING-COUGH takes its name from that peculiar sound or convulsive clangor which accompanies it. There could not, certainly, be a more appropriate term by which to designate a disease. The names *chin-cough*, *kin-cough*, and *kind-cough* come from the Saxon or German word “*kind*,” a child, or child’s cough, the disease being peculiarly common to children. The Greeks denominated the disease *beætheriodes*, which, translated literally into Latin, is *tussis ferina*—a “wild or untamable cough.” The name *pertussis*, which is more commonly employed by scientific writers, is from *per*, a prefix denoting excess, and *tussis*, cough.

The distinctive feature of this affection is the peculiar convulsive cough which occurs at intervals, in fits, as we say. These “fits,” when the disease is fully formed, consist of several expirations, followed by inspirations, in which there is a very peculiar clangor or *hoop*—a sound which, once heard, can not easily be mistaken for that of any other cough. The fits of coughing generally come on more frequently in the evening, or the night or morning, than during the day.

*It occurs mostly in Childhood.*—Although this disease occurs for the most part only in childhood, cases are not unfrequently met with in persons of advanced age. Dr. Mackintosh, of Edinburgh, tells us that he had seen many instances of it in adults. Dr. Heberden saw it in a woman of threescore and ten, and in a man of eighty years of age. These were probably cases of a second coming on of the disease, a circumstance which is well known sometimes to occur.

*Is Hooping-cough Contagious?*—It is often epidemic, and is evidently a contagious disease generally, although not highly so. This some writers have denied. Even Laennec, the great French writer on diseases of the chest, regarded that its contagious nature was not satisfactorily proved; and that alternations of temperature are quite as much a cause of this as of other catarrhs or colds in the lungs. But if this be true, we may ask, how does it happen that hooping-cough so rarely affects a person more than once during life? This fact would seem to lead us to the conclusion that it is a specific disease, as much so as measles, scarlatina, or small-pox, all of which leave behind them in the system some mysterious influence which shields the person ever afterward from an attack. And yet, it must be admitted, that the remote cause of hooping-cough is very difficult to trace. “Frequently, indeed,” says Dr. Good, “like common or humid cough,



it seems to proceed from cold, from some irritability of the stomach, or some peculiar affection of the lungs." Linnæus endeavored to resolve almost all diseases into an animacular or insect origin, and hence taught that the hooping-cough was also produced in the same way by an insect of a peculiar kind. Evidently enough this theory can not be proved, for cases often happen in which it is wholly impossible to determine the cause of the disease. From what is known of this affection, then, we are to conclude that it proceeds, in most instances, from some miasm or poison of a specific nature, which, like that of the influenza, or epidemic catarrh, and the measles, has a direct determination to the lungs; though, as Dr. Good observes, it is not, like these contagions, necessarily linked with fever.

The contagion of hooping-cough is supposed to remain dormant from ten to fourteen days. So it is believed in the country, where these things can be more readily traced than in the thickly inhabited city. Medical works, so far as I know, are wholly silent on the subject.

*Mortality of the Disease.*—Hooping-cough is not of itself a very fatal disease. It is doubtful, indeed, if it ever causes death, except by being connected with, or by inducing some other affection which is sufficient to destroy life. According to Dr. Watt, as quoted by Dr. Mackintosh, the deaths from hooping-cough, in Glasgow, have been pretty nearly  $5\frac{1}{4}$  per cent. of the whole deaths in that city. The greatest number in any one year took place in 1809, when they amounted to  $11\frac{1}{4}$  per cent.; and Dr. Watt concludes that next to small-pox, formerly, and measles now, hooping-cough is the most fatal disease to which children are liable. According to Dr. Emerson, the disease in Philadelphia is more fatal to the female sex. Dr. Dunglison quotes from the census of Ireland for 1841, which gives for every 100 males, 115.43 of females who died of hooping-cough. According to all experiences, the younger the subject the worse and more liable to prove fatal has been the disease. It is said not often to attack children at the breast; but the writer at this time knows of a number of nursing children who have it; and about one year ago he attended a lady of this city (New York), in childbirth, in the month of October, whose infant was attacked with hooping-cough before it was a week old. It, however, did well under water treatment.

*Symptoms.*—Hooping-cough may, for the sake of convenience, be divided into three stages, although such a division—it need scarcely be said—must necessarily be, to a considerable extent, arbitrary. There are:

1. *The catarrhal stage*, or the coming on of the disease, which re

sembles simply a common cold or catarrh. 2. *The nervous, spasmodic, or convulsive stage*, which is easily known by the peculiar cough attending it; and, 3. *The period of decrement*, or decline, and which is indicated by the wearing away of the spasmodic symptoms.

*In the first stage* there is more or less of indisposition, as in a common cold. There is apt to be a feverishness, alternating with chilliness, suffusion of the face and eyes, sneezing, running at the nose, and an increased discharge of tears. There is also a dry, fatiguing cough, which, like a common cough, returns in paroxysms, particularly at night, in consequence of the feverishness which is apt then to recur. This stage, like all the others, varies considerably in duration; it may last only a few days, or, on the other hand, for weeks. Usually it does not last more than a fortnight.

*In the second stage* the cough attains its greatest violence. It is now excessively convulsive and violent. The little patient, as he feels the symptoms of its approach, if able, runs to lay hold of his parent or nurse, or some object by which he can support himself till the fit is over. Sometimes, too, he gets down on all fours, and seems to derive more aid in that than any other position. After the paroxysm is over, he jumps up and runs about to play, as if nothing at all had happened to mar his comfort. Sometimes also the feeling of suffocation leads him to run to the open air, and mothers have found by experience, that if, as soon as the fit comes on, the child be taken to an open window, or the door, it is the more easily borne, and shorter in duration.

In some cases the sense of suffocation is dreadful beyond description; the respiration is impeded; the cough is intense and protracted; the features are swollen, and of a livid color; the eyes seem ready to start out of their very sockets; the eyelids are red and swollen, and the cheeks, perhaps, bathed in tears, till at last expectoration takes place, and brings relief. This is at first more tough and ropy in character, but as the disease advances, becomes thinner, and is consequently more easily thrown off. When the cough is bad, there may be three or four fits, as it were, in quick succession, which terminate only by the expulsion of a thick, ropy, tenacious phlegm, which is also sometimes accompanied with vomiting up the contents of the stomach, particularly in cases where food has been recently taken. The child often swallows the phlegm, which, contrary to the notion of old women, is not necessarily an unfavorable circumstance. It passes to the stomach, and can not therefore be again thrown up by coughing, as is supposed. Vomiting up the food is considered a favorable omen, since it generally brings relief to the sufferer.

In bad cases there is a good deal of headache experienced. The appetite becomes bad, the stomach and bowels disordered, and oppressed with flatulence and distension. It is possible, in some rare cases, for bleeding of the lungs to occur; so also some of the little blood-vessels in the conjunctiva of the eye may break. The nose often bleeds, and when this occurs, in a plethoric child more particularly, it is to be looked upon as a good omen. In the worst cases of the disease there is more or less of fever always present; this, in connection with the impediment of respiration, shows that there is mischief going on within, which, if not remedied, is very apt to end in death. Fits of temporary asphyxia, or fainting, sometimes occur, and which may suddenly destroy life. It is said by Dr. Mackintosh that, in some cases, children have been known to die suddenly in this way, whose cases were previously slight, and not attended with fever. Convulsions may also carry off the patient; but cases of this kind, as well as those which die in a fainting fit, must be exceedingly rare, and such, too, as are not properly attended to from the beginning. The worst cases we find are those which happen in connection with an absence of general health, with bronchitis, or which succeed the small pox, scarlatina, measles, or some other serious malady.

*In the third stage*, or decrement of the disease, there is a gradual waning away of the spasmodic fits; the paroxysms of coughing become by degrees shorter and shorter, and less frequent and violent in character. The peculiar noise which designates the disease also disappears gradually—although in some cases quite of a sudden; matter expectorated becomes thicker and more opaque, assuming toward the last a greenish hue; and sometimes it becomes puriform or pus-like in character. The cough toward the last does not differ from that of an ordinary catarrh. This, if it be in the autumn, may last until the coming on of warm weather in the spring, particularly if the child be feeble and has an hereditary tendency to affections of the throat and chest. At other seasons of the year, however, the disease generally passes off very soon after the *hooping* has ceased, especially if the case be well managed according to the principles of the water treatment.

*Duration.*—This, as in other diseases, is variable and uncertain. On an average, its period may be estimated at from six weeks to three months. It may, in some few cases, be shorter than a month and a half; but it is generally much longer, and not unfrequently lasts beyond three months. Much here depends upon the management of the case.

*Treatment.*—Each of the three stages demands a treatment in some

respects peculiar to itself, although the general principles of management must all along be the same. As regards the use of drug medicines, Dr. Dunglison frankly admits that it rarely happens that we are able to cut short the disease or to modify its course. "The number of remedies which have been brought forward," remarks this author, "is immense, but the true plan is to treat the disease according to general principles; for neither in this, nor in any other disease, has a specific been discovered." And Dr. Gregory, with that characteristic frankness and candor which ever marked his brilliant career, remarked, in his lectures, "I think it proper for me to warn you, in the first place, that we have no cure for it." Long ago the great Sydenham declared it to be "a most stubborn, and commonly unconquerable, incurable disease." If we look over all the best authorities on the Practice of Medicine, we shall find as much discrepancy of opinion regarding the treatment of this as of any other affection. In carrying out the best of motives for the good of the sick and suffering, medical men have left no stone unturned in the treatment of this disease. Every remedial substance, from the simplest herb to the most deadly and virulent poison—not omitting bleeding, leeching, and blistering, to the fullest extent—have been again and again resorted to, and with this result—that *there is no known specific for the disease*. In regard to its treatment by drug substances, we have another among the many proofs of the lamentable ignorance that obtains in the profession concerning the true principles of the healing art.

The first stage, as I have remarked, resembles in all respects a common catarrh or cold; and consequently the treatment should be the same. In short, every thing should be done in the way of bathing, air, exercise, diet, and in the hygienic habits throughout, that may be, to fortify and invigorate the general health. I believe all authorities agree on this one point—that fresh air, exercise, prudent exposure out of doors daily, cold bathing, and, in short, the tonic plan generally, is the best possible course that can be followed in this disease. Dr. Mackintosh tells us that he has seen the greatest advantages in this disease, as in many other cases of chronic bronchial affections, from sponging the body with water, or vinegar and water, two or three times a day. "At the meeting of the Medical Section of the British Association, in 1840," says Dr. Dunglison, "it was stated, that rubbing the chest with cold water, repeated two or three times a day, with so much activity as to produce a rubefacient (reddening) effect, was frequently of great use." Dr. Elliotson remarks, that "after a time, there can be no doubt of the use of the cold shower-bath." And the celebrated Dr. Good tells us that "cold bathing, so far as his own ex-

perience extended, had proved more certainly and rapidly remedial than any other prescription whatever." The effects of fresh air, also, which belong to the same category of therapeutic agents, are spoken of in the highest terms of recommendation. Even the change from one room to another is often productive of manifest improvement. This fact is well understood by people generally. In the city of New York, some have been in the habit of taking their children frequently across the ferries, where the air is pure and fresh, and with the best of results.

Sometimes, however, mischief is done by exposing the child to a great change suddenly. This happens oftener in consequence of its having been kept too closely confined within doors, and in overheated rooms. If the apartments be kept at all times sufficiently ventilated and of the proper temperature, neither too hot nor too cold, and the child is at the same time bathed daily in cool or cold water, it can seldom receive any harm from being taken out into the open air. Nothing in the medical art is better established than the great value of cold bathing and ventilation as a means of preventing colds.

The second or inflammatory stage of hooping-cough is generally attended with more or less general feverishness; and in connection with this disease there may be at the same time some other, of inflammatory type. In all such cases, the great indication of treatment is to subdue the abnormal heat. Without attention to this matter, we might, as Dr. Elliotson observes, "give all the anti-spasmodics, all the narcotics, and all the other medicines that are supposed to have a direct influence over the spasm, and yet do no good; we should, in fact, make the patient worse; and if nature were not to get the better of us, and cure the individual, there is every probability that great mischief would be done."

The water treatment, properly managed, it is beginning to be understood at this late day, is the best, safest, and most effectual means possible for reducing general feverishness, of whatever kind. As to what amount is to be given, the nature of the case should determine. One patient may need few baths in a day, another many; and, in all cases, enough of the water processes should be followed out to keep the general fever constantly in check.

*The Wet Jacket.*—There is one method of practice which I have adopted with marked success. It may be resorted to during the whole period in which the cough is present. I refer to the use of the wet jacket. We make, of the linen cloth—sheeting, usually, although heavy cotton will answer the purpose tolerably well—a jacket, with armholes, that covers the whole trunk of the body, two or three

thicknesses are worn at a time. It should be re-wet in from one to three hours, according to circumstances, always before it becomes too warm or dry. In the hottest weather there would be danger of its doing more harm than good, by the heat retained, if it were not changed very often. In cold weather there may be flannel enough over the wet to keep up a comfortable degree of warmth. This, especially in bad cases, should be worn constantly. In some cases, where it has been left off for a short time—as, for instance, an hour or two only—the fits of coughing have at once grown worse, and, on putting it on again, the unfavorable symptoms have as quickly vanished.

*The Bath.*—In connection with the wet jacket, I have been in the habit of ordering two to four ablutions in the twenty-four hours—with water not entirely cold—at from  $60^{\circ}$  to  $70^{\circ}$  Fahr., according to the child's strength, and the season of the year. The colder the weather, the cooler the water used. But I conclude that there is no need of using it at a lower temperature than  $60^{\circ}$  Fahr. Certain I am that there is no need of doing any great violence to the child's feelings by using the water very cold. Tepid water—by which we mean a temperature of from  $80^{\circ}$  to  $92^{\circ}$ —is cold water in effect, only milder in degree. We may give the tepid-bath oftener and longer at a time, if necessary, to produce the desired effect.

The shallow-bath I regard the best form. Any common tub may be used; and if the child objects to sitting down in the water, as is often the case, he may stand while the water is poured, cupful by cupful, over him. Or it may be laved, so to say, upon the surface, by means of a sponge or large towel.

*The Wet Sheet.*—In some cases I have advised the packing, loosely applied, twice in the twenty-four hours, with the bath after it. This method may be adopted in connection with the wet jacket, if it be desirable, at any time. If the child is very young, the sheet should be placed loosely round its body, with blankets sufficient to insure comfortable warmth, and then held in the lap to sleep. A young child usually sleeps better while thus held, than in bed.

If the child swoon or faint away from congestion of the brain, carrying it to the open air, and sprinkling cold water upon it, is the best means of reviving it. It is possible for a child to die in such fits—such cases having been known to occur—and so trifling a matter as sprinkling cold water upon the surface might easily, in some cases make all the difference between life and death. These fits are often hard to bear.

*The Diet.*—As in all inflammatory diseases, so in whooping-cough, the diet should be light, rather spare, and of unstimulating kind.

*The Clothing.*—This should be loose, so as to admit of a free circulation of air about the whole surface. At the same time it should be such as to insure a comfortable temperature in the cool and cold seasons; in the hot there could scarcely be too little; one single light, flowing garment would be better than to have more. It should be remembered, in reference to this, as in all other inflammatory diseases, *that, while the heat is above the natural standard, it is the very next thing to impossible in any way to take a cold.* This is particularly true of cases in which the water treatment is practiced.

*Water Drinking.*—It is of great importance in whooping-cough, that all the water used for cooking, as well as for drinking and bathing, be pure and soft. All families may, at a trifling expense in the construction of cisterns, have always an abundance of the best and purest water, that which falls from the clouds. Pure, filtered rain-water, with the addition of a little ice in the hot season, if necessary, to make it palatable, is one the greatest of luxuries, as well as highly conducive to health. Let the child, then, with whooping-cough, have as much pure soft water as it will take; during the paroxysms of coughing it will be manifestly relieved if it can be induced to take small draughts of fluid; and throughout the whole management, the more freely we use the pure, soft element, both internally and externally, the less thick and tenacious will be the phlegm, the less the quantity expectorated, and the less violent and troublesome the symptoms of every kind.

In the third stage, or decline of the disease, the treatment should be, according to circumstances, similar to that of the first stage, and always such as is calculated to fortify and invigorate the general health. If boils make their appearance, as is sometimes the case in the decline of the disease, we are to regard the symptom as a good one.

If the whooping-cough occurs in connection with any other disease, we are simply to treat the case according to the symptoms, without any reference whatever to mere *names*.

It is the opinion of most writers, though not all, that we can not by any means whatever shorten the duration of this malady. If it be admitted that we can not, we know that we may, in a very marked degree, mitigate its severity by the water treatment, and doubtless, in some instances, save life, where, in the ordinary methods, the patient would be lost.

#### CROUP—LARYNGITIS STRIDULOUS.

This is one of the most violent and dangerous of all inflammations. It affects locally the mucous membrane of the trachea, extending to

the bronchia on one hand, and to the larynx and sometimes the fauces on the other. In most fatal cases a false membrane is deposited, lining the trachea, and extending often to the bronchia and fauces. Rarely this membrane is coughed up; but when even this apparently favorable effect has been observed, the membrane has been again soon reproduced, and death the result.

*Symptoms.*—Croup generally comes on like a common cold. There is cough, generally slight, attended with hoarseness and sneezing, just as if the child had caught cold, and was about to suffer from a simple catarrh. In one, or two, or more days, there is superadded to this state of things a peculiar shrillness and singing of the voice, as if sound passed through a brazen trumpet. At the same time, according to Dr. Cullen, who has well described the disease, "there is sense of pain about the larynx, some difficulty of respiration, and a whizzing sound in inspiration, as if the passage of the air were obstructed. The cough which attends it is sometimes dry; and if any thing be spit up, it is a matter of a purulent appearance, and sometimes with fibers, resembling portions of a membrane. Together with these symptoms there is a frequency of pulse, a restlessness, and an uneasy sense of heat. When the internal fauces are viewed, they are sometimes without any appearance of inflammation; but frequently a redness and even swelling appear, and sometimes in the fauces there is an appearance of matter, like that rejected by coughing. With the symptoms now described, and particularly with great difficulty of breathing, and a sense of strangling in the fauces, the patient is sometimes suddenly cut off."

*Stages.*—Croup may be said to have three stages; in the first there is a mild, croupy cough, with some degree of inflammation, but not severe; in the second, the cough and inflammation go to their highest pitch; and the third, in which the false membrane is formed, and from which recovery is rare, although cases do every now and then occur in which this morbid growth is expelled and life saved.

*Termination.*—More commonly croup lasts two, or three, or four days only. In some rare instances the patient lives seven or eight days, or even longer. It is possible for it to terminate in death in twenty-four hours. In favorable cases, the cough becomes, by degrees, less frequent and severe, and at the same time more loose; the breathing becomes more easy, and the pulse less. In many cases, too, there will appear betimes a very considerable amendment in all the symptoms, so much so that the parents, and perhaps the physician himself, is led to regard the patient as out of danger. Soon, however, the most fearful aggravation takes place—death soon closing the scene. We



can not account the patient safe until he has passed, at least, one night without a return of unfavorable symptoms.

*Age most Liable.*—This disease does not often, though sometimes, occur during the first year of life. It happens probably most frequently during the second year. The third year is, also, one in which a good deal is to be apprehended from it. From the second year to the age of puberty constitutes the period at which there is most liability to it. It may, however, occur at any age. I have myself treated not less than three marked cases of this kind, all of which were cured, though very severe attacks. I am not able to say whether croup is more dangerous in children or adults; but I am led to believe that a grown person has a better chance of recovery, from the fact that he is much less liable to it.

If, then, according to the above description, the symptom and progress of this most formidable disease come on in a manner generally so obscure and stealthy that even an experienced person may fail to detect them, how careful should every one, and especially every parent, be in learning, as well as he possibly may, how to detect the very beginnings of this fearful malady? How careful, too, should he be in studying ever diligently those laws of health, by the observance of which this disease may, with almost inevitable certainty, be prevented? That an ounce of prevention is better than a pound of cure, is nowhere in the wide world more true than in regard to this disease. How much easier and better it is, by constant care and diligence, to prevent an attack of croup, than it is to have to send after a physician in the dead of night, and to run up a heavy bill, which you are, perhaps, poorly able to pay, not to speak of all the pain and agony which your child must be brought to endure, and probably to be lost in the end by suffocation, one of the most horrible deaths that can be conceived of? I repeat, when all these considerations are taken into the account, every parent and every philanthropist must be convinced of the great importance of learning and carrying out in practice all things possible in regard to the preservation of the health of the young and innocent beings which the Almighty has committed to their care.

*Treatment.*—Croup being one of the most rapid and severe of all inflammatory diseases, the treatment, it will be inferred, must be prompt and decided, in proportion to the exigencies of the case. As in all severe inflammations, it must be such as is sufficiently powerful to pervade and affect the whole system. I know it is generally true that the people, and too often the physician, direct attention for the most part only to the local means. But this will not suffice. The disease, although local to a certain extent, affects powerfully the whole

organic domain. Besides, we can always affect a local part most through general means.

As to the best guide in the treatment, we should look well to the pyrexia, or general feverishness of the body. If we keep this well subdued *from the first*, I do not see how it is possible for a child to die of this disease. A high degree of inflammation must prevail, and that for a considerable time, before the fatal effusion in the throat can take place. If, then, we subdue the inflammation sufficiently early, and keep it subdued, we must necessarily be successful in the cure.

"But how are we to know this state of feverishness in the system?" it is asked.

I answer, every parent should know all about the pulse of children. They should know what it is in sickness, and what in health. Then they have an unerring guide by which to ascertain the existence and extent of an inflammatory action.

The heat, too, as well as the pulse, is to be taken into the account. Any one of common observation can tell by the feeling if a child is becoming too hot. Mothers, especially, are adroit at this; they know right well, most of them, if the child is becoming too warm. They notice, too, much more than we fathers are apt to do, any little disturbance in breathing or the sleep. "My child is sick; it does not sleep well, and is feverish," we often hear them exclaim.

The "croupy" cough, which is generally pretty well understood, also serves, to a considerable extent, as a guide. If a child coughs badly, we may know it is sick, and should be forthwith attended to, whether in the night or the day. Suppose it is not the cough of the croup; it is yet an unnatural thing, the sooner to be prevented the better. If we wash and rub the chest with the hand wet in cold water, and put upon it a wet bandage—methods that are always salutary for a cough—we do good, although the attack may not prove to be one of croup. So, too, if the child is feverish; it is better to prevent that fever, although it should prove to have no relation whatever to this disease.

In a violent attack of croup we could hardly do too much until it is subdued. Sometimes it may be necessary to bathe the child every hour, or even oftener. At all events, we should give baths enough, change the bandages often enough, and wash and rub the chest sufficiently to keep the breathing good and the croup in check. There is no need of chilling the body too much, particularly the feet. The child may be held in such a position over a tub, that in pouring water upon it the feet are not at all exposed. If it be in the night, the water very cold, and the child becomes a good deal chilled, it may, after

putting wet bandages about its throat and chest, be placed between two persons warmly in bed. But in these circumstances care must be taken lest the child be smothered and made too hot. In that case, the breathing would very soon indicate the mischief going on.

Tepid and cold affusion—tepid if the child is weak, but cold if the contrary—with wet-hand friction upon the throat and chest, with the constant use of wet bandages upon these parts, constitute the sum and substance of the best of all known methods of treating this disease. Tepid injections to the bowels are also useful, and the means are to be followed up as many hours or days as there may be a need. Nor should the treatment be left off too soon; for it should be ever remembered, that always after an attack of croup the child is more than before liable to it. Both in reference to the prevention, as well as the cure, this fact can not be too well remembered.

This treatment, I repeat, constitutes the best of all known methods for curing croup. I do not know, in the whole range of medical experience, any thing which is more calculated to make a man thankful, than to be possessed of a knowledge of so good a remedy as cold water in this disease. When one's child is suffocating, just ready to die for the want of breath, if a suitable cold affusion is administered, I do not know what can make him more thankful than the most sudden and wonderful relief obtained. Nor do I know of any thing in the whole range of the medical profession more calculated to inspire us with feelings of reverence toward the Giver of all good.

Before closing the subject of the treatment of this disease, I will make a quotation from high authority, showing the good effects of the cold-water treatment in this disease; a quotation which shows, by the way, that there are at least some in the profession who are ready to adopt any measure, so that it promises to be a means of benefit. Dr. Good, in his "Study of Medicine," gives an account of Dr. Harden, of St. Petersburg, after every other remedy had failed, of venturing upon cold affusions in this disease. He first tried it, in a fit of despair, upon a child of his own, eighteen months old. The child was placed in a bathing tub, with its belly on a cushion of hay; and a pail of water, at 12° Reaumur (59° Fahr.), was then poured quickly from the head along the spine. The symptoms, after the first affusion, soon diminished; the operation was repeated at intervals ten times, and the child recovered. Dr. Harden afterward employed the affusion with like success in the first stages of the disease. Dr. Miller, also, another physician of St. Petersburg, was, according to Dr. Good, still later, as fortunate as himself in the use of the remedy.

As a desperate resort, when all other means fail, and when the

child is in danger of strangulation from the closure of the upper part of the windpipe, it has often been recommended to cut open the part as low down at the neck as possible, for the purpose of letting in the air, so that the child may not suffocate for the want of it. The doctrine of surgery is always to resort to this operation, if every thing else fails; and there is no doubt but that all good and honest surgeons would prefer, by all means, to have it done, rather than let the child die without it. But what have been the results of this measure? Do we find about the world people living who can breathe only through a hole in the throat close down to the sternum? For my part, I have never seen such a case, or even heard of one. The truth is, the operation seems always to prove an unsuccessful one. What folly, then, or rather what brutality, to torture a young child that is just at the point of death! We ought not to do it. I say the operation does not succeed, and for the very good reason that it is not the mere closure of the windpipe that kills the child, but the extensive inflammation and the throwing out of matter, not in the throat simply, but deep down in the air-tubes of the lungs.

#### INFLAMMATION OF THE HEART—PERICARDITIS AND ENDOCARDITIS.

The various portions of the heart, like other parts of the body, are liable to become inflamed; but that part of the organ which is most commonly affected in this way is the pericardium, or enveloping membrane of the organ. It is, on the whole, a somewhat common disease.

*Endocarditis*—inflammation of the lining membrane of the heart—is a much less common affection. In the majority of cases—if not all—it is impossible to determine endocarditis with certainty. The proper treatment, however, would be the same for this as for any other cardiac inflammation.

Pericarditis is not generally a very violent disease, except in some cases of rheumatism. It is very apt to steal upon the system gradually in the form of a chronic disease. It is extremely liable to follow an attack of rheumatism, especially if the case has been treated with severe medicines. No doubt many a patient has been destroyed with rheumatic inflammation of the heart, which would not have occurred if the patient had simply been left to nature, with good nursing, instead of being dosed with those abominable drugs, colchicum, guaiacum, mercury, and opium.

*Causes.*—Inflammation of the heart is caused in the same way as other inflammations, and oftenest by exposure to wet and cold.

A few years ago it became a piece of fashionable *chit-chat*, which was helped along not a little by ignorant doctors, too, that water treat-

ment was very liable to cause disease of the heart. This served as a very good bugbear for a time, but as far as I know at present it has died away. The *facts* in Water-Cure—the “hard-telling” facts—these are what put an end to all such nonsense, after a time. What foolishness to assert that water treatment produces disease of the heart! What medical tyro, with “an ounce of medical knowledge and a thimbleful of brains,” does not know that if a dozen persons are unduly and severely exposed to the action of wet and cold, one might have rheumatism, another general fever, another pleurisy, another inflammation of the lungs, perhaps, while the others would escape harm altogether? Possibly some one of the number might contract an inflammation of the heart, but he would be no more apt to do so than to get any other severe inflammation, and probably not so much so, for the heart is more shielded from the action of cold than most parts of the system. The lungs, probably, become inflamed in fifty cases where the heart does once.

It is believed that the rheumatic form of pericarditis may remain many years without giving the patient any trouble, except now and then, when taking cold, the disease is set up afresh in the joints. If this supposition is true, it should give us much more hope than has generally been entertained in regard to curing the complaint.

*Symptoms of Acute Pericarditis.*—There is general fever, but the respirations are easier and less frequent than in inflammation of the lungs or their membranes. There is pain in the region of the heart, which is sometimes dull, but oftener acute and lancinating. “It generally darts,” says Dr. Elliotson, “through to the left shoulder blade, upward to the left clavicle and shoulder, down the arm a certain way, and (what is remarkable) rarely extending quite as far as the elbow.” Forcible pressure over the region of the heart augments the pain, and patients sometimes tell us that the heart feels as if gimlets were being bored into it. There is generally more or less palpitation, the symptom being in some cases violent.

*Treatment.*—It is singular that so talented an author as Dr. Edward Johnson, should have thrown doubts over the minds of his readers as to the curability of heart disease (see “Domestic Practice of Hydro-pathy”) by remarking that “he had nothing to say about the treatment of this deadly malady,” and that it has but two terminations: invariably death or chronic disease of the heart. Now Dr. Johnson is well aware, as he asserts, that acute inflammation of the heart is almost always connected with acute rheumatism; and no one has explained more forcibly than he has how it is that water treatment is so effectual in rheumatic complaints. If water is serviceable in curing rheumatism

in all other parts of the system, we are led to a belief which is almost as strong as the most positive demonstration, that such treatment is also good for curing the affection in the heart. Besides, too, some of us have had experience in the matter; one notable case, at least, I have myself cured, where rheumatism had invaded the system in a very severe manner, attacking also the heart most violently. Such a case, I say, I have cured, and that when powerful drug treatment had failed to bring relief.\* I remark, therefore, that we should treat acute pericarditis upon precisely upon the same principles as we would any other severe inflammation, and a guide for which the reader may refer to what I have said in regard to treating pneumonia.

In *chronic heart disease* there would be less hope of curing, although we ought not by any means to give over any case as hopeless. We have as good authority as Dr. Elliotson for saying that this disease may last a long time without causing any serious trouble. If so, then it is possible to cure it. The proper means would be such as are best calculated to benefit the general health.

There are many other affections of the heart of which it is not necessary, in a work like the present one, to speak particularly. I refer to such as *ossification, abscess, induration, atrophy or wasting, aneurism, gangrene, softening, dilatation, rupture, hydatids, hypertrophy, tubercles, etc.* All of these come on in consequence of long-continued derangement of the general health or some taint of the system. They are all very obscure diseases before death, and if it were possible to detect them with mathematical certainty, we should still have to treat them as general principles, just as we would do if we did not know positively the nature of the disease.

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\* See the case of Mr. Ives, under the head of "Rheumatism," in this work.

## CHAPTER IX.

### OF THE SKIN.

ONE of the most wonderful among the works of creative mechanism is the enveloping membrane, or covering of our bodies, called the skin. It is not possible to conceive any thing in nature more complex or beautiful; and a knowledge of the nature, structure, functions, and diseases of this part of the living organism is of the greatest importance to all.

The skin answers several important ends in the living structure. It is, 1. A protection and covering for the body. 2. A respiratory organ. 3. It affords an outlet for superabundance of water in the blood. 4. It gives off effete and impure matters through perspiration. 5. It forms, through the sense of *touch*, a medium of communication with surrounding objects.

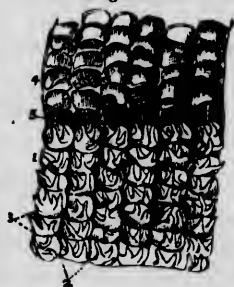
The human skin is composed of three layers: the *epidermis*, *cuticle*, *horny* or *scarf skin*, which is the outer covering of the body; the *rete mucosum*, an exceedingly delicate membrane lying upon the true skin, and called by some a layer of paint, inasmuch as it gives the color the individual possesses; and the *cutis vero*, or *true skin*, composed of a network of blood-vessels and of nerves, which are so numerous that the finest needle can not be made to penetrate it without wounding them.

The epidermidal surface appears for the most part smooth to the ordinary vision; but when observed microscopically it is found to be *lamellated*, the plates or scales increasing in density from the inner to outer surface. See fig. 48.

Fig. 48 exhibits the external arrangement of a portion of skin taken from the palm of the hand. 1. Papillary layer, marked by longitudinal furrows (2), which arrange the papillæ into ridges. 3. Transverse furrows, which divide the ridges into small quadrangular clumps. 4. The rete mucosum raised from the papillary layer and turned back. 5. Perspiratory ducts drawn out straight by the separation of the rete mucosum from the papillary layer.

The epidermis covers every possible part of the living structure, except that occupied by the nails. It varies in thickness in different parts, and in the same part at different times. A man's hand, for instance, becomes delicate by disease, but hard and horny by

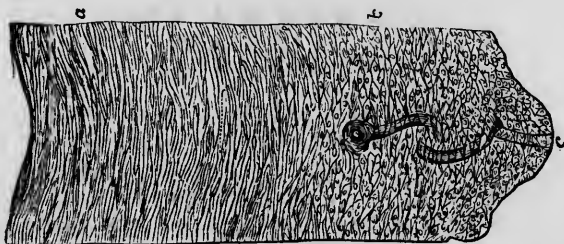
Fig. 48.



INTEGUMENT OF THE HAND.

hard work. In such cases numerous additional layers are developed. Fig. 49 is a representation of this kind.

Fig. 49.



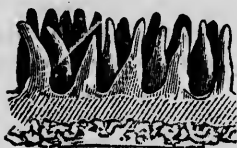
EPIDERMIC STRUCTURE.

Fig. 49 is a vertical section of the epidermis from the palm of the hand; *a*, outer portion composed of flattened scales; *b*, inner portion, consisting of nucleated cells; *c*, tortuous perspiratory tube, cut across by the section higher up. It is magnified 155 diameters.

The *cutis vera*, true or sensitive skin, is of an uneven surface, the unevenness consisting of small, elongated prominences called papillæ. See fig. 50.

Each papilla contains an artery, vein, and nerve. The arrangement of which may be seen in fig. 51.

Fig. 50.

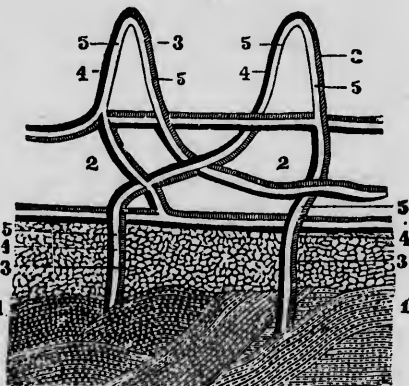


CUTANEOUS PAPILLÆ.

Fig. 50 exhibits the papillæ as they appear in the palm of the hand, after a removal of the cuticle.

In fig. 51, 1, 1, represent the true skin. 2, 2. Papillary layer. 3, 3. Arteries of the papillæ. 4, 4. Veins of the papillæ. 5, 5. Nerves of the papillæ.

Fig. 51.



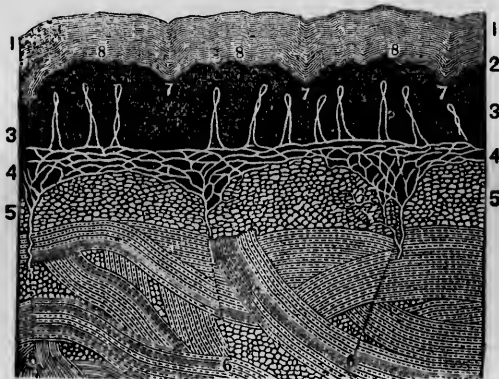
IDEAL REPRESENTATION OF THE PAPILLÆ.

Nothing in the wide world can be conceived of better calculated to fill the office designed than the sensitive papillæ of the skin. Possessing loops of sensory nerves, and situated on the surface of the true skin, they serve to give sensibility everywhere to the cuticular structure, thus enabling us to shun innumerable sources of danger and harm.



The general arrangement of the different parts of the skin are well represented in fig. 52.

Fig. 52.



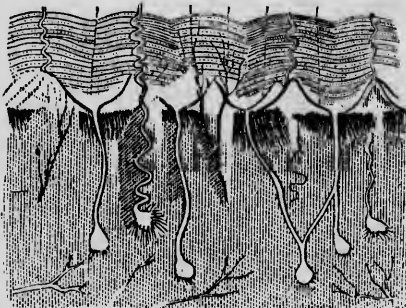
LAYERS OF THE SKIN.

In fig. 52, 1, 1, represent the cuticle. 2, 2. Rete mucosum. 3, 3. Papillary layer, showing the nerves as formed into loops. 4, 4. The network of nerves. 5, 5. The true skin. 6, 6, 6 Nerves dividing to form the network (4, 4). 7, 7, 7. Furrows between the papillae. 8, 8, 8. Papillae largely magnified.

Fig. 53 is a beautiful representation of the general structure of the skin, as given by Breschet.

Fig. 53.

In fig. 53, 1 is the derma. 2. Epiderma arranged in layers. 3. Papillae arranged in pairs, forming the ridges of the skin. 4. Nerves of the papillae. 5. Sudoriferous or perspiratory glands emerging between two papillae. 6. Sudoriferous gland and duct seen entire; the duct opens in the interspace between a pair of papillae. 8. Apparatus for the secretion of the coloring matter of the skin, terminating in a number of small ducts. 9. Coloring and epidermic matter gradually deposited in layers to form the epiderma. 10, 10. Absorbent vessels, or lymphatics. 11. Blood-vessels.



MINUTE ANATOMY OF THE SKIN.

Throughout the living body may be observed the wisest adaptation of its various parts; and in no respect does this become more apparent than when we compare the blood-vessels of the skin externally with those of the mucous membrane which lines the internal parts. The amount of blood conveyed to a part is always in proportion to its nerv-

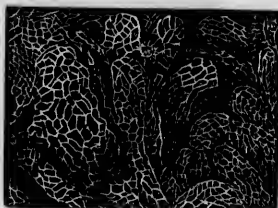
ous sensibility and the nature of the office to be performed. The nervous sensibility of the villi of the mucous membrane of the bowels is inconsiderable, while that of the papillæ of the skin is great; hence the difference in the amount of blood sent to each, as may be seen by a comparison of figures 54 and 55. The blood-vessels of the mucous membrane of the bowels are not only smaller than those of the skin, but much less numerous.

Fig. 54.



CUTANEOUS CAPILLARIES.

Fig. 55.

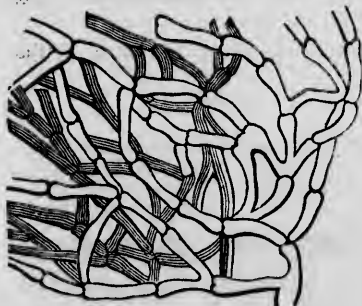


INTESTINAL CAPILLARIES.

Fig. 54 shows the distribution of capillaries at the surface of the skin of the fingers.

Fig. 55 is a representation of distribution of capillary vessels in the villi or mucous coat of the alimentary canal.

Fig. 56.



CUTANEOUS LYMPHATICS.

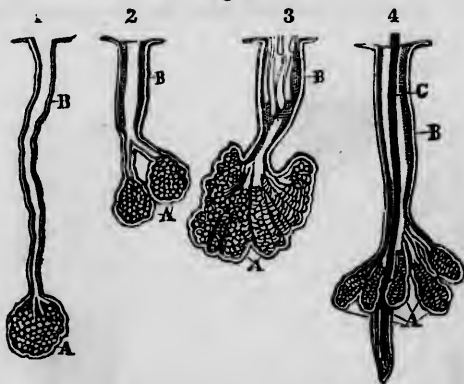
*The Lymphatics.*—These are distributed in great numbers to the skin, but are so minute as not to be visible to the naked eye. Injected with mercury, they give the skin the appearance of quick-silver. Fig. 56 is intended as a magnified representation of a plexus of cutaneous lymphatics.

*The Oil Glands.*—What are termed *sebaceous* or oil glands are distributed to the various parts of the skin in proportion to the need.

They open upon the cuticle with a tube, straight or winding as the case may be, and their office is to keep the surface supplied with a mild, oily fluid. Along the edges of the eyelids, in the ears, upon the face, and wherever one part is to move upon another, they are most numerous. In the ears, the oily matter secreted is of a bitter taste, which serves to keep off insects and other vermin. In the armpit the same thing is observable. They also serve to remove morbid and effete matters from the blood. These glands are represented in fig. 57; and in fig. 58 a highly magnified view of the same, as occurring in the

axilla, or armpit. Fig 59 represents the sebaceous glands of the ear.

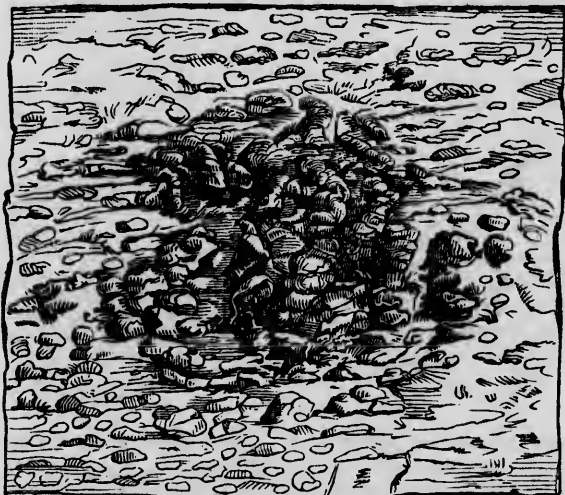
Fig 57.



SEBACEOUS, OR OIL GLANDS.

fig. 57, 1 is an oil-tube and gland from the scalp; A, the gland; B, the tube; 2, oil-tube and gland from the nose; A, the gland, which is double, and communicates with the main tube; B, by two smaller tubes; 3, another oil-gland and tube from the nose; A, the gland; B, the tube filled with what has been called the peculiar animalculæ of the oily matter; 4, a small hair from the scalp with its oil-glands; A, the glands, forming a cluster around the shaft of the hair-tube, C. The ducts open into the sheath of the hair, B.

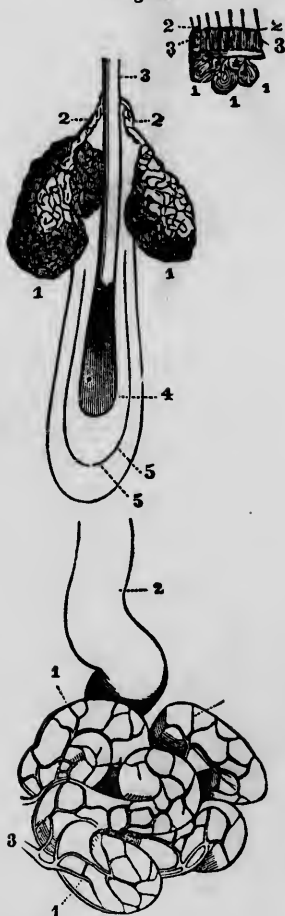
Fig. 58.



SEBACEOUS GLANDS OF THE AXILLA.

*The Perspiratory Apparatus.*—This is of a still more intricate and interesting nature than that just considered. Some idea of the appearance of the perspiratory glands and tubes may be gained by referring to figures 60, 61, and 62.

Fig. 59.



SEBACEOUS GLANDS OF THE EAR.

Fig. 60.



PERSPIRATORY GLAND AND TUBE.

It is impossible, however, to give on paper any thing like an accurate representation of the millions upon millions of the minute structures of this kind which are everywhere contained in the skin. Dr

Wilson has made some interesting calculations concerning them, which I shall notice presently

Fig. 61.



ORIGIN OF A SWEAT-GLAND.

of glands, with their ducts traversing; *b*, the cutis and cuticle; *c*, small hair; *d*, *d*, portions

Fig. 62.



SWEAT-GLANDS OF THE AXILLA.

Fig. 61 represents a sweat-gland at the commencement of its duct; *a*, venous radicles on the wall of the cell in which the gland rests. This vein anastomoses with others in the vicinity; *b*, capillaries of the gland separately represented, arising from their arteries, which also anastomose. The blood-vessels are all situated on the outside or deep surface of the tube, in contact with the basement membrane.

Fig. 62 is a vertical section of the skin and sweat-glands of the axilla; *a*, layer

*The Perspiration.*—There are two kinds of perspiration, or sweat, the sensible and insensible, so called, that emanate from the living body; and the apparatus by which the perspiratory function is effected is one of the most curious and wonderful which the human mind can comprehend. Dr. Wilson tells us that to arrive at something like an estimate of the value of the perspiratory system, in relation to the rest of the organism, he counted the perspiratory pores on the palm of the hand, and found 3,528 in a square inch. “Now each of these pores,” observes this author, “being the aperture of a little tube about a quarter of an inch long, it follows that in a square inch of the skin of the palm of the hand, there exists a length of tube equal to 882 inches, or 73½ feet.” Upon some parts of the body the pores are not so numerous as upon the palm of the hand, but Dr. Wilson estimates, after giving much attention to the subject, that 2,800 may be taken as a fair average of the number of pores in a square inch over the surface generally, and 700, consequently, is the number of inches in length. The number of square inches in a man of ordinary size is 2,500; the number of pores, therefore, must be 7,000,000; the number of inches of perspiratory tube 1,750,000, a sum equal to about twenty-eight miles! Considering, then, the vastness of the perspiratory system, are we not most forcibly reminded of the necessity of attention to the condition

of the skin? Do we not see, also, how admirably the water treatment must be adapted to the cure of disease, since a large proportion of its measures are applied directly to this important part of the

Fig. 63.



INSENSIBLE PERSPIRATION.

organism?

\*The difference between *sensible* and insensible perspiration consists only in the activity with which it passes off. Insensible perspiration, which is intended to be represented by fig. 63, is always emanating from the body when in a healthy state, from the first breath of infant life to the last of old age. But sensible perspiration is only occasional, as, for example, when muscular exercise is greater than common, heat excessive, or the system in certain states of fever.

Among the uses of perspiration, one of the most notable is the removal of certain effete, worn-out, and noxious matters from the system. It has been estimated that not less than thirty-three ounces of perspirable matter is thrown off naturally

in twenty-four hours, a large proportion of which, however, is water.

Checking perspiration, or, in other words, allowing the skin to become inactive, is always attended with more or less harm to the constitution. True, in some cases, the bowels, kidneys, lungs, etc., may prove sufficient for the emergency, in throwing off the perspirable matter that should have passed out at the pores; but in other cases, serious disease is the result. A sudden check of the normal action of the skin is always attended with danger.

It happens that the skin becomes chronically inactive; the perspiratory function is not completely checked, but only rendered inactive. Any farmer knows full well how harmful it is for animals to become "hide-bound," and if such a condition of things is allowed to go on for any considerable time, the animal is very liable to droop and die. Now, the truth is, a very large proportion of mankind are "hide-bound," and have a skin so inactive, that without a removal of this

evil, they can not, by any means whatsoever, enjoy good and enduring health. Whenever a person, male or female, can not readily, by suitable exercise, excite a visible perspiration, they may be assured that their systems are in a state far removed from real health, and that if they neglect their symptoms, they are liable constantly to become more and more ill.

There is an idea growing out of this subject, of great practical importance, and which I will briefly notice in this place. It is now known to those conversant with hydropathic practice, that patients generally are greatly pleased with getting an external crisis as soon as possible. Now, in some parts of this country, as well as the old, there are practitioners who recommend placing oiled silk, and the like articles, over the wet bandages, because, as they have found by experience, eruptions on the surface are thus sooner brought out. But this is what Priessnitz denominated "false crisis," and which does always more harm than good. First, to draw out morbid and poisonous matters from the system by means of wet linen, and then by air-tight applications to throw these back upon the surface, is manifestly wrong. Suppose we dress a man tightly in India-rubber, from his neck to the soles of his feet, certainly he would not live long in such a predicament. When some French experimentalists covered a rabbit with a coating of air-tight varnish, the animal died in an hour and a half, of asphyxia. I say, therefore, use no air-tight applications upon the skin in water treatment, not even on a small scale, if you wish to proceed safely and insure the best results.

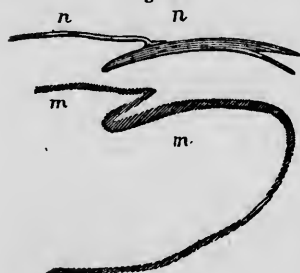
With reference to the *health and diseases* of the skin, it should also be remarked in this connection *that disease affecting a part of a membrane is liable to spread to the whole ; that disease of the external surface may spread to the internal mucous membrane, and vice versa ; and that disease of a part of the skin may be translated to a remote part of the mucous membrane, and the contrary.* These statements comprise a fundamental law of nature, which, in all our efforts either to preserve health or to cure disease, should ever be borne in mind. There are few if any diseases in which either the one or the other of these membranes is not largely implicated.

*Appendages of the Skin.*—These are the *nails* and the *hair*. They are not vital in their structure, in the ordinary acceptation of the term, being destitute of blood-vessels and nerves ; but their growth, conformation, and functions evince a degree of wisdom in adaptation not exceeded in any part of the living fabric.

The *nails* are composed of numbers of horny, semi-transparent scales or plates. By a most curious process of nature, their growth, both in

thickness and length, depends upon the true skin. This latter may be said to be folded into a groove to receive the roots of the nail, as seen in fig. 64, and still more fully in fig 65.

Fig. 64.



SECTION OF FINGER.

Fig. 65.



SECTION OF FINGER AND NAIL.

Fig. 64 represents a section of skin on the end of the finger. The cuticle and nail, *n*, detached from the cutis and matrix, *m*.

In fig. 65, 1, 1, represent the cuticle continued, under and around the root of the nail, at 3, 8, 8; 2, the nail; 4, bone of the finger; 5, fatty matter forming the finger ball, and constituting a bed or cushion at the end of the finger.

In reference to the management of the nails, Dr. Wilson, in speaking of the harmonious growth of these parts in thickness and length, well remarks: "What if we should willfully oppose nature in her harmonious course, by wearing a shoe that is obviously too short for the foot, and which brings the edge of the nail against the leather? Why, in this case, nature gives us warning, by means of her agent, *pain*, that such a proceeding is contrary to her laws. We stop our ears, and get accustomed to the pain, which perhaps is not severe, and soon goes off; the shoes get a scolding for their malice, and we forget all about it for a time. But does nature check her course to suit the convenience of thoughtless man? No, no! In a short time we find that the nail, intercepted in its forward course, has become unusually thick and hard, and has spread out so much upon the sides, that it is now growing into the flesh and soon makes a case for the doctor. Or, perhaps, the continuance of pressure may have inflamed the sensitive skin at the root, and caused a sore and painful place there. And instances are by no means unfrequent, in which the power of production of the nail at the root, becomes entirely abrogated, and then it grows in thickness only." The reader is also referred to what is said in this work on the subject of *ulcerated toe-nail*.

The same author gives, also, the following advice concerning these parts: "The care of the nails should be strictly limited to the use of the knife or scissors to their free border, and the ivory presser to prevent the adhesion of the free margin of the scarf-skin to the surface of the lanula, and its growth forward with that part. This edge of scarf-skin *should never be pared*, the surface of the nail *never scraped*, or the nails cleaned with any instrument saving the nail-brush. Soap and



the nail-brush, with the occasional use of the knife or scissors to the free end, and the ivory presser to the scarf-skin at the root, are *golden rules for the care of the nails*; and will prevent all their inequalities and disorders,"

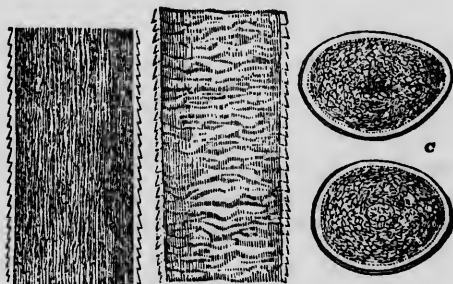
The *hairs*, like the cuticle, contribute to the defense of the true or sensitive skin. Every part, with the exception of the palms of the hands and the soles of the feet, is organized for the production of hairs. Figures 66 and 67 will serve to give some idea of the origin and structure of these growths.

Fig. 66.



ORIGIN OF HAIR.

Fig. 67.



STRUCTURE OF HUMAN HAIR.

In fig. 66, 1 is the hair follicle, represented as imbedded in the cellular substance (2), which is situated beneath the skin. 3, 3, membranous sac, which has a narrow neck, opening externally by a contracted orifice, through which the hair (4) passes. Its internal surface is smooth, and not adherent to the hair, but separated from it by a reddish fluid. From the bottom of the sac (5) the pulp of the hair arises, and passes through the skin at 6.

In fig. 67, A is the external surface of the shaft, exhibiting the transverse striæ and jagged boundary, caused by the imbrications of the scaly cortex; B, longitudinal section of the shaft, showing the fibrous character of the medullary substance, and the arrangement of the pigmentary or coloring matter; C, transverse sections, showing the distinction between the cortical and medullary substance, and the central collection of pigmentary matter, sometimes found in the latter, magnified 310 diameters.

The *health of the hair*, it will be inferred, depends mainly upon that of the skin. Like this part, it should be kept in a cleanly state, and all oily substances, washes, etc., are, as a general thing, better avoided. Now and then a solution of mild soap and water may be used upon it with advantage; but pure soft water without addition should be the common wash.

## CHAPTER X.

### DISEASES OF THE SKIN AND ITS APPENDAGES

#### SMALL-POX—VARIOLA.

VARIOLA is a Latin term, derived originally from the word *varius*, which signifies spotted ; or, as some suppose, it is derived from the word *varus*, a pimple. The word *pock*, or *pox*, is of Saxon origin, and comes from the word *poccadl*, which is derived from the word *pocca*, a bag or pouch, or *pocchcha*, which means a little bag. The term *small* was added to it in the third or fifth century, it is said, to distinguish it, no doubt, from another, and, if possible, more loathsome disease.

*Period of Incubation.*—It is very difficult in most cases to ascertain how long a time intervenes between the exposure to small-pox and the coming on of the disease. From *twelve* to *fourteen* days has been ascertained to be the usual period, although in some cases the disease has been known to occur earlier than this after the exposure.

*Premonitory Symptoms.*—These are such as may occur in the commencement of any severe fever. There are febrile chills and heat, sometimes with and sometimes without perspiration ; languor, pain of the head and back, and tenderness of the stomach (epigastrium). Vomiting is also liable to take place. As the eruption begins to appear, there is, in cases of children, a tendency to fits. In England it is reckoned that one fit forebodes a mild attack, whereas several forebode a severe one. “When there is but one fit,” says Dr. Elliotson, “there is so little mark of severity of disease, that it has been often deemed a favorable symptom ; but we would suppose, that if the child had no fit at all, it would forebode something better still.” There are always in the beginning more or less of fever and quickness of pulse. In some cases the fever runs very high.

*Eruption.*—After the febrile symptoms have continued for *two, three, or four* days, small red spots, which soon become pimples, appear, first on the face, and afterward gradually over the whole surface.

During the *first* and *second* days of the eruption, the pimples are “small, hard, and globular, red and painful, separate and distinct from each other, with nearly colorless interstices.”

During the *third, fourth, and fifth* days, the eruptions become *vesicular*, contain pus, and the interstices become red. At the same time

there is frequently an increased flow of saliva; the face swells, and in bad cases the eyes become closed.

During the sixth and seventh days, the "pocks" have "a *central indentation*, and a *surrounding ring of rose-colored inflammation*, which frequently coalesces with those of adjacent pustules, where the eruption is numerous." The swelling of the face and the salivation decline gradually, the hands and the feet at the same time becoming tumefied.

During the *eighth*, *ninth*, and *tenth* days, the pustules become full and perfect, the central indentation at last giving way, when they are said to be "full at the top of the pock."

During the *eleventh*, *twelfth*, and *thirteenth* days, the pustules open, the matter is thrown off and absorbed, and scabs are formed, after which they fall off gradually, leaving the parts brown, and more or less pitted. When the pustules begin to diminish, the disease is said to have *turned*, or commenced going away.

*Secondary Fever.*—For the first three or four days, there is what is called *primary* fever. As the eruption comes out, this usually grows less. At about the time when the eruption has passed to its height, there is apt to be a second accession of febrile symptoms, denominated the *secondary* fever.

All of the above-mentioned symptoms are subject to some variation. They are, however, such as usually appear in a common case of the disease. If a course of water treatment is followed faithfully and perseveringly from the first, the appearances will be considerably modified, and the symptoms a good deal mitigated. The more fever, the more of maturation and general disturbance there must always be. The less fever, the less trouble of every kind.

*Varieties of Small-pox.*—These are the *distinct—variola discreta*, and the *confluent—variola confluens*. In the latter, all of the symptoms are more aggravated, the pustules run together, and the face becomes, as it were, a complete scab. This is the most dangerous and loathsome form of this terrible disease.

*Modified Small-pox.*—When the disease occurs in those who have been vaccinated, the symptoms are usually much milder and more irregular, and the disease of shorter duration. It is of the same nature as the genuine disease, only milder in form. In some cases a few pustules only appear.

*External Surface only Affected.*—It is a remarkable fact, in regard to small-pox, that it appears only on the surface of the body. All deep-seated organs appear to possess the remarkable power of always opposing its lodgment upon any of their surfaces, and of driving it

wholly upon the external surface, where it can do the least mischief. Dissections of subjects who have died of the disease have been, in different parts of the world, repeatedly made, by which it has been abundantly shown that none of the viscera or cavities of the body are ever liable to the eruption. Parts, however, which are immediately affected by the ingress of air, such as the nose, mouth, trachea, and entrance of the ear, and the lower bowel, if it protrudes, may become, in some measure, covered with the eruption.

*Complications.*—In both forms of small-pox, the confluent and the distinct, complications are apt to occur; that is, some local part becomes affected while the general disease is going on. The more severe the attack, and the poorer the management, the more liability will there be to these complications. Those most apt to occur are the following: inflammation of the eyes, of the brain and its membranes, of the throat, of the organs of the chest, of the bowels, of the joints, ulcerations in different organs and parts of the system, and diarrhea, which last is to be regarded as a healthful effort of nature, that should not be improperly interfered with in the way of drug treatment. It may at any time run into ulceration of the bowels, but is much more likely to do so if the system is drugged. With the best possible management, small-pox is but too apt to arouse some latent taint in the system; and if one who has a serofulous tendency in his organism, gets through with the disease without having it induce either pulmonary consumption or some kindred disorder, he may be very thankful. I know and admit that water treatment is a powerful engine for good in these cases; but good as it is, in this as in all other diseases, I wish the reader not to lose sight of the fact, that with the best management it is yet a most loathsome and pernicious malady. But as an encouragement in the premises, I will mention that formerly, when the heating plan of treatment was in vogue, blindness, serofulous affections, and consumption were much more common than now, when the disease is treated according to the cooling method.

It is a medical doctrine, that no two severe diseases can affect the system at the same time. Small-pox affords an exception to this rule, because it has often been known to occur in connection with measles. Cow-pox and measles may also act simultaneously in the system.

*Time of Fatality.*—Small-pox may destroy life at any period, from the first invasion of the fever to the thirtieth or fortieth day. It is very uncommon for it to prove fatal before the appearance of the eruption, although such cases do occur. The eighth day may be regarded as that attended with the greatest danger, and the second week exhibits the greatest mortality.

*Recurrence.*—Small-pox usually occurs but once in the same individual. Now and then, however, it happens twice, thrice, and even four times to the same person. On the other hand, there are some who do not contract the disease from any exposure.

*Influence of the Atmosphere.*—That small-pox is communicable through the atmosphere, or that it is contagious, all admit. How far it may thus communicate itself, has been a question among medical men. Dr. Haygarth, of London, appealed to facts in proof that the variolus poison does not, in any given case, include a sphere of more than 1,500 feet, and probably not a hundredth part of this diameter. The state of the atmosphere must be taken into view in such calculations. Violent cold often puts a check to the spread of the disease. In some peculiar places, and at some particular times, for which we can not account, the disease is incapable of spreading itself.

*May occur in the Fetus.*—Small-pox, like some other diseases, may attack a child while it is yet in the mother's womb. I myself once attended a mother in childbirth, who had been from day to day exposed to small-pox in the house in which she lived. In less than a week after delivery she sickened with the disease in a mild form, and almost simultaneously the infant also had it, sooner, by a number of days, than could have been, if it had not received the contagion before it was born. One thing is remarkable, too, in regard to the fetus being affected with small-pox; if a mother has obtained an immunity from it by inoculation, or by having the disease in the natural way, the unborn child is yet liable to it. Dr. Good quotes, on the authority of Dr. Meade, the following case: "A woman, who had formerly had the small-pox, and was near her sickening, nursed her husband, who had caught it. At her full time she was delivered of a dead child, the body of which was covered over with pustules; a manifest sign that it died of small-pox before it was brought into the world." Dr. Jenner, also, published the cases of two women who were exposed to small-pox; one had passed through the disease previously, and the other had been inoculated. Neither of the mothers had the disease the second time, but both served as transmitters of it to their children. In the one instance, the disease appeared in the child on the seventh day after birth; in the other, the child was covered with small-pox at its birth. But in other cases when pregnant women have been exposed in a similar way, the child has been born perfectly healthy. Even in cases where the pregnant mother herself takes the disease, she does not necessarily communicate it to her child; so that, from all the facts which have been collected, it would appear that a like variation in regard to taking the disease occurs before birth as afterward;

that different individuals—or even the same individual, under different circumstances—evinced a different degree of susceptibility; so that the disease, though it may be resisted at one time, may be readily received at another.

*Mortality.*—At the London Small-Pox Hospital, the extremes of mortality have been fifteen and forty-two per cent. of those attacked. The average mortality in the old country has been stated usually at twenty-five per cent. In this country this disease appears to be much less prevalent than in Great Britain. We have no registry of the deaths occurring in the country; but we know that the ratio of mortality from small-pox must be very small compared with that of the aggregate of other diseases. Even in the city of New York, where the number of deaths from variola is probably as great, proportionately, as in any other city of the Union, only a very small proportion are found to occur from this disease. I have before me the City Inspector's report for several of the past years, from which I gather the following facts. The whole number of deaths occurring in the city in 1847 was 15,788, while the number of deaths occurring from variola was but 53, or only about one in every 300. The whole number of deaths in 1848 was 15,919; that by small-pox 544, or about one in 30. The whole number of deaths in 1849, it being the year of epidemic cholera, was 23,773, while the number dying from small-pox was only 326, or about one in 73. In 1850 the whole number of deaths was 16,978, while the number of deaths by small-pox was 231, or about one in 73, the proportion being very nearly the same as that in the cholera-year previous.

*Treatment.*—It appears that early in the history of small-pox the cooling or antiphlogistic practice was the one adopted; but "that in the revolutions of the science, and especially when the chemists and humoralists got possession of the schools, it was entirely changed by their preposterous pathological and therapeutic views."

Practitioners, considering that the disease consisted in a peculiar *lentor* or cold principle or virus in the blood, "the patient was wrapped up warmly in bed, the room kept heated, the doors and windows carefully closed to the exclusion of every breath of fresh air, and stimulating sudorifics, with wine and cordials, administered freely."

Gaddiston, who lived in the fourteenth century, the first court physician, and one of the very earliest, if not the earliest of English medical writers, recommended that the patient should also be surrounded with "red curtains, red walls, red furniture of all kinds, so that every thing he saw should be red, under the idea that there was something glowing or otherwise beneficial in that color."

Sennertus, who wrote at the beginning of the 17th century, says: "That while using these means, every attention is to be paid, especially in winter, to the exclusion of cold air. The patient, therefore, is to be tended in a warm chamber, and carefully covered up, lest, by closing the pores of the skin, the efforts of nature should be impeded, the humors driven on internal organs, and matter which ought to be expelled, retained within the body, to the imminent danger of the patient, and the certainty of increasing restlessness, fever, and other symptoms."

Diemerbroeck, a cotemporary of Sennertus, speaking on the same subject, says: "Keep the patient in a chamber close shut. If it be winter, let the air be corrected by large fires. Take care that no cold gets into the patient's bed. Cover him over with red blankets. Not that the color is material, but because all the best, thickest, and warmest blankets are dyed red. Never shift the patient's linen till after the fourteenth day, for fear of striking in the pock to the irrecoverable ruin of the patient. Far better is it to let the patient bear with the stench, than to let him change his linen, and thus be the cause of his own death. Nevertheless, if a change be absolutely necessary, be sure that he puts on the foul linen that he put off before he fell sick, and, above all things, take care that this supply of semi-clean linen be well warmed. Sudorific expulsives are, in the mean time, to be given plentifully, such as treacle, pearls, and saffron."

It is now a matter of medical history, that the mortality from such a plan was immense; and it is but due to the memory of Sydenham to assert, that it was owing to his own genius and efforts, that the profession were again set right with regard to the true principle of treating this disease, although its details were not sufficiently improved upon until Priessnitz's time.

There is now no one thing in the whole range of the medical art better established than this one fact: *that the cooling method is incomparably more successful in treatment of small-pox than the stimulating.* "The grand principle in the treatment of small-pox," says an able writer, "is to moderate and keep under the fever; and however the plans that have been most celebrated for their success may have varied in particular points, they have uniformly made this principle their pole-star, and have consisted in different modifications of fresh air, cold water, acid liquors, and purgative medicines; heat, cordials, and other stimulants having been abundantly proved to be the most effectual means of exasperating the disease and endangering life."

We are, then, to treat small-pox on the same general principle as all severe inflammations, namely, *to keep the fever in check from the*

*beginning to the end of the disease.* As to how much water-drinking, how many baths, wet-sheets, compresses, and bandages, and what the temperature of the water, all this must vary according to the nature, severity, and other circumstances connected with the case. No other treatment can at all compare with this for comfort, in so desperate a disorder.

Small-pox being one of those peculiar and mysterious diseases which must necessarily run through a certain course, we can never expect to cut it short entirely; but one thing is very evident, that, by proper management, it may be greatly modified in each and every case.

In order to do this, we should endeavor to take it in good time. Upon this, in fact, does the good success of the treatment very much depend. We should begin at the very outset of the fever, if possible, and employ the most unremitting exertions to the end; and even before the fever commences it would be of great service if the patient could be dieted and put, as it were, through a sort of hydropathic course. This would, *in all cases*, lessen the violence of the attack, as was abundantly proved by the experiments of inoculation, in which practice it was the custom to prepare patients beforehand. It was found by experience, that by good care and management the disease could be very much modified.

But it generally happens that the fever comes upon the patient without our knowing at the beginning what is to be the result. Fortunately, however, it is not strictly necessary for us to know. We treat it as we would any other attack of fever, and upon the same principle that we would if we knew beforehand that it was to be small-pox; and, as before remarked, we give as few or many wet-sheet packs, baths, etc., as the urgency of the case demands.

But we will suppose the eruption already to have made its appearance before water has been commenced; it is not even then too late, and it is even yet in our power to do a great deal of good. True, the eruption must, in such case, be the worse for the fever not having been checked; but we may greatly modify the fever and soreness which the eruption causes.

Now, by way of analogy, the state of the body in eruptive fevers may be compared to a barrel of fermenting beer. The more heat there is in and about the beer, the more rapidly will fermentation progress, and the greater will its product be. The yeast produced by fermentation represents the matter generated in small-pox. Now if a cold wet-sheet were kept about the barrel of beer, causing by its evaporation a constant cooling of both its surface and contents, and if in addition cold water is frequently poured over it, who does not



know that the fermentation will be rendered less. In just such manner cooling of the body in fever, operates upon the fermentations in the blood. This is no wild fancy; it was not only the doctrine of the ancients, but is at this time believed by the greatest philosophers of the age.

If I were again to have an attack of small-pox, I would, from the first, have almost the entire surface of the body—the more the better—covered with wet linen, in the form of sheets, towels, compresses, etc. I would have, at times, perhaps three or four times a day, the entire pack; at other times I would have the folded wet-sheet about the trunk of the body, which would allow of easier movement in bed, while at the same time it could be opened in front, and re-wet without the trouble of taking it wholly off. I would, at the same time, have wet towels or bandages about the limbs, above and below the knees, and upon the arms above and below the elbows. In short, I would, as much as might be, *live* in these wet casings, keeping all, or nearly all of the time, as much of the surface as possible exposed to the soothing effect of these wet applications. The face, too, as well as the head, neck, and throat, should be subjected to the same process. I would also have tepid ablutions in water at from 70° to 80° Fahr., a number of times daily—as often as once in three or four hours, both night and day. By these means the fever would be kept in check, the amount of eruption and maturation would be lessened, the surface would be kept clean—which is a great desideratum in so filthy a disease—and the general *ease* of the body (if I may use the term *ease* in relation to a disease which is of itself all *soreness*) would, in every respect, be promoted. Sleep, too, which is almost a stranger to small-pox, under any other mode of treatment, except that by water, would, in this way, be promoted in a remarkable manner.

I need hardly add that it would be serviceable to use tepid injections of water frequently—I should not care if it were every three or four hours, for the more we *soak* water into the system in a fever, both internally and externally, the better. The clysters may be small ones, if the patient is too weak to move much. At all events he should not be too much fatigued by any part of the treatment.

As to the drinking of water, it is as useful here as in any other kind of fever. It is of the greatest importance that the water is both pure and soft; and I do not think it best to take it very cold, or to use ice. *Dilution*, as well as *cooling*, will quench thirst. Even *warm* water—not hot, I mean—will quench thirst admirably by its diluent effect. At any rate there is no need of doing violence in the way of cold. The patient should drink little and often, and as much as he

conveniently can, so as to dilute, as much as possible, the poisonous matter of the distemper that is raging night and day within him. As before remarked, THE MORE OF DILUTION OR WATER-SOAKING, BOTH INTERNALLY AND EXTERNALLY, THE BETTER IN THIS DISEASE.

*Irritation from the Eruption.*—The eruption, which has been the occasion of much speculation in medical writings, is a source of great annoyance to the patient. To be completely sore from the crown of the head to the sole of the foot, as often happens in small-pox, and this to last for a number of days, is no trifling matter. I can not speak from personal experience, having had the disease in a light form, after vaccination; but patients tell us of the horrors of the soreness and itching caused by the eruption. A great many substances have been resorted to for the alleviation of these symptoms. All manner of plasters, poisonous and otherwise, have been had recourse to; but I am more and more of the opinion that the watery applications are by far the best. I have allowed the use of oil freely over the face and other parts during the painful process of desiccation; but I am so much of the opinion of the superior effects of water, that I should, in my own case, use the wet applications in preference to any other known. I would most certainly use those which I thought promised best. I care not what remedy it is, so that it is one which is in its nature best suited to the object to be gained. And is it not reasonable to suppose that the benevolence of the Author of nature would lead him to place within the reach of all his creatures the best remedy? We can not, I think, in justice to him, believe that he would have made it necessary for us to go to Turkey or China, Hindostan or South America, in order to get the best remedy for any disease, and especially one that comes so suddenly upon us as small-pox. Is it not much more reasonable to suppose that He would, in every habitable land, furnish EVERYWHERE the best and cheapest remedy for our every ill? That pure water is this remedy, I have not a shadow of doubt.

*Prevention of Marks.*—As a general fact—and I assert this from experience—no permanent marks are left from small-pox upon those patients who have, *from the first*, a well-regulated course of water treatment. In all cases a crop of spots are left upon the surface for a considerable time, even after the patient has recovered and is able to go about as in ordinary health. All these, however, go off in time, and nothing is ever to be feared from them. Children are especially exempt from marks.

It has been fashionable, of late, to apply mercurial plasters to the face, with a view of lessening the disease upon this part, hoping thereby

also to render the liability to marking less. Some are of the opinion that the practice proves a good one in some cases; but others are of a contrary opinion. Nor is it probable that any course of local treatment can ever be found out that can at all be relied on for the object of preventing marks. The good effect of any remedial measure depends mainly on the *constitutional* management, and not upon merely local applications of any kind. That which keeps down the fever the most effectually, thus rendering the disease in every respect more mild, must be the best in the nature of things possible for the prevention of marks.

*Fresh Air and Cleanliness.*—I have reserved this branch of the subject till near the last of my remarks, in order to speak particularly of its importance. When we remember how many times a patient breathes in the course of twenty-four hours, and how large a portion of air is required to support life for even a short period of time, it must be very evident that the *quality* of the air is a thing of great moment. We will suppose that there are, in some given locality, two cases of small-pox; one is in a close and badly-ventilated apartment, while the other is in an airy and well-ventilated one. Now who does not see that the one in the close room, breathing over and over again the same foul air from his lungs, rendered also doubly foul from the scabs and other pestiferous matter caused by the disease, must stand a much poorer chance of recovery than the one who has constantly a fresh supply of pure air? I have elsewhere cited the cases mentioned by Captain Johnston, showing the good effects of pure air in the filthy steerage of a ship. Indeed, all writers of any note, for the last one hundred years, agree in the necessity of thorough and constant ventilation in this disease. Nowhere, in fact, can fresh air be of greater importance than in this most loathsome disorder; and here, too, as well as elsewhere, we find cause of gratitude toward the Author of our being, when we observe how good a remedy fresh air is; how soon it dissolves and renders completely inert so loathsome and destructive a poison, and how abundant the supply.

I repeat, then, that in all cases the utmost care should be taken, both night and day, to give the patient a good and constant supply of fresh air. Be not frightened with the old notion that night air is bad. Suppose you are in a bad place—in the worst ague district the earth possesses—no matter; the night air, even in such a place, can not be any thing near as bad as that which is breathed over and over again by a small-pox patient, and rendered also still more pestiferous by the effluvia from the disease.

The patient should likewise be in the largest and best room that

can be obtained, or that the house affords. People seem often to think that the best room, the parlor, for instance, must be kept from all such use as that of putting a sick person in it. Just as if fashion and *show-off* were of more importance than HEALTH! What foolishness do we see exhibited in these things; and if anybody in the world has a chance to see human nature in all its phases and aspects, I think it is the physician. He sees people put a sick child, for instance, off in some dark corner or bedroom, the very poorest ventilated place, most likely, in the whole house. More than once I have ordered that a sick child be put at once into the largest and best room of the house, and of course with the best results.

In this connection there is one almost universal error which I ought to refer to. I mean that in regard to taking cold. Now, a great many persons seem to think that the more fever a patient has, the more danger in this respect. But the truth is, that the more fever *the less liability to take cold*; and it may be laid down as a maxim, as permanent as any other in the healing art, *that in all inflammatory diseases, of whatever name or kind, while the force of the malady is upon the system, it is the very next thing to impossible for a patient to take what is ordinarily called a cold.* I cannot be too emphatic in this; for the error is almost universally a prevalent one, not only among the people, but physicians themselves. It is this error, likewise, which in many cases leads to great mischief, for when patients need most the sustaining effect of cool fresh air, they are smothered most in hot rooms, hot beds, etc.

Closely allied to the subject of ventilation is that of cleanliness. There was a time when both the people and physicians supposed it better to let a patient remain, throughout small-pox, without the clothing being changed. This custom must have arisen from the fears that were entertained in regard to exposure to cold. They did not dare to change the patient's bed or shirt lest he should be too much exposed. The least change of air upon the surface, it was feared, would at once strike in the disease. In this thing, therefore, as in a great many others relating to the health of our bodies, to use a homely phrase, *the cart was put before the horse.* It was not at all understood, that the more the fever is allowed to prevail, the more likely is the eruption to be thrown in—not upon the vital organs, as is by many erroneously supposed, for this affection never attacks the internal parts, but upon the mass of blood. Hence it was that patients were often destroyed, when, if simple ventilation had been had recourse to, they would have recovered and done well.

We can not, then, be too particular in regard to changing the

clothing often. We may even be *old-maidish*. Change the clothing—body and bed—morning, noon, and night, if you please, the oftener the better, if by so doing the patient is not subjected to too great fatigue. Remember, I repeat again, how good fresh air is to dissolve the variolous poison, and how short a distance it can operate where fresh air exists. The clothing need not be washed every time it is changed. Hanging it in the sun, or by a fire in another room, will be very useful; any thing by which the strictest cleanliness is obtained.

*Diet.*—Most fever-patients are allowed to eat too much. Some may be allowed too little; but this must be the exception to the rule. In all severe fevers the system absolutely refuses all nourishment; that is, it is not digested or made into blood. Hence all nutriment, in such cases, is worse than useless, since if it does not go to nourish the system, it must only prove a source of irritation and harm. If the disease is severe, then it would be best as long as the fever lasts to give no nourishment whatever. In mild cases it would of course be otherwise, although it would harm no one to fast a few days, but would, on the contrary, do them good. When nourishment is given, it should be of some bland and *anti-feverish* kind. Good and well-ripened fruit in its season would be especially useful, taken always at the time of a regular meal.

*Drinks.*—I have spoken already of drinking freely of pure soft water in this, as in all other inflammatory diseases. A great many physicians are much in the habit of recommending some acidulated drinks, as lemonade, lime juice, apple water, etc. I have no doubt that these often do a great deal of good. The patient is very fond of them, and seems to have a natural craving for them. They should, however, be weak, and the less sweetened the better, because sugar is always a very hard thing for the stomach to digest, hard in health, and still more so in disease. I can imagine that the pain and uneasiness of the skin in small-pox would often be made much worse by the use of sugar or other sweet things, the article having always a tendency to act unfavorably upon this part of the body. Some have a great fancy for buttermilk; and it is certainly a good article for those who are old enough to use it.

*Light.*—Before closing this subject, I ought to refer to the influence of light. Now, as the eyes often become a good deal affected in small-pox, it is supposed necessary to exclude the light as much as possible from the patient's room. This should not be; for, in doing so, we deprive him of one of the *life-agents*, and that a most important one. I would not give a patient so much light as to make him very uncom-

fortable : but I would give him all he can bear ; and if we can but drive all the old women's whims out of his head, he will, in general, be glad of as much light as can be given him, short of the direct rays of the sun. And in no respect will light be of more service to him than in *strengthening his eyes*.

Thus we see that a great variety of circumstances are to be taken into account in the treatment of small-pox. To recapitulate, we have first the fever to combat ; then the eruption and maturation, and a sort of secondary fever. Then, too, comes the healing process, and, finally, all the tonic measures that go to support the patient's strength. And I trust it has now been made plain to the reader's mind that water, air, cleanliness, and light, are the great, the *royal* means for the end.

I need scarcely remark, that in cases of complication with other diseases, the treatment is to be managed on the same general principles as we would do in other cases of a similar kind.

It is an important fact in water treatment, that almost every one who is subjected to this method will have, during convalescence, more or less of boils, which, doubtless, are the occasion of much benefit to the system. It is an evidence of the inward purification of the body, helped by the benign influences of water.\*

There are many important facts on record, illustrative of the good effects of water in small-pox, some of which I have published in

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\* While at Graefenberg the last time, I conversed fully with Priessnitz with regard to his management of small-pox ; and having had ample opportunities for treating the disease, I confidently testify to the correctness of his views on the subject. His method was as follows: In the early stages of the disease, treat the fever according to the general principles for feverishness of any kind ; apply the wet-sheet one, two, four, six, or more times in the day, as the symptoms may demand, with plunge-baths, half-baths, or the rubbing-sheet, accordingly as the patient may have strength to endure them. A good treatment, I will remark, and one that Priessnitz would follow in ordinary cases during the more feverish stages of the disease, is, morning, noon, and evening, to give two wet-sheets, one immediately following the other, with light covering, so as to communicate a good degree of coolness to the system, each sheet to continue only for ten to fifteen minutes, and the bath, according to the patient's strength, following. The tepid half-bath at 70 degrees F., would be a mild means for a very feeble person, or an ablution by means of the rubbing-wet sheet, the person remaining in a reclining position if very weak. But this seldom happens in the earlier stages of the disease. If the fever should run very high, many sheets might, and indeed should, be applied in the twenty-four hours, the patient remaining in them, as in cases of bad typhus, most of the time. But in all these cases, care must be taken that the patient does not become too warm in the sheet. Better not apply it at all. Manage to keep down the feverishness, and the acrimony and severity of the disease will be greatly mitigated. The wet girdle is also to be used constantly when the patient is not in the wet-sheet. Water drinking, of the purest and softest cold water that can be obtained, is to be encouraged, and at all times practiced as freely as the patient desires. The diet must be cooling, and very spare. In severe cases, it is better when the fever is at the worst, to pass two, three, or even more days, without any nourishment whatever.

former works ; but the importance of the subject demands their introduction into the present volume.

In a curious but very sensible work, entitled "*Febrifugum Magnum ; or, Common Water, the Best Cure for Fever and probably for the Plague,*" written by Rev. Dr. Hancock, of London, and published in 1724, I find the following case :

"I had a daughter of my own, the last of my children that had the small-pox. She fell ill, as I thought, of a fever, with pretty violent symptoms ; I treated her as I used to do in that case—gave her in bed a good dose of water. I expected it would make her sweat ; it did not ; which I a little wondered at. However, I found in a little time the symptoms went off, and the fever was much abated. I kept her to the cool regimen ; the fourth day the small-pox appeared. I kept her to the same regimen, caused a thin slice of bread to be thoroughly toasted, without burning it ; as the taverns generally do, put it hot into the water, which makes a very pleasant liquor, almost of the color of canary. This was generally her ptism, and sometimes, for variety, small-beer with a toast in it, and a little warmed—though but now and then, for water is much better, and not half so apt to disturb the blood, and promotes circulation and perspiration much better. At due distance of time, sometimes water-gruel, or some thin water-pap, for a little nourishment. I do not remember what cordial we had, whether any or none. However, a little good canary, or any other moderate cordial, is not hurtful if given in such a small quantity as may a little warm the stomach, without reaching so far as much to affect the blood. The small-pox came out very thick, but very distinct, and looked very well. I never in my life saw any one that had more of them, more distinct, rose higher, or looked better. She went on very well the whole time, without any of the common dangerous symptoms, had no pain in her head, no tendency to delirium, nothing like coma, nor more drowsiness than any one might have that lay in bed. But that which I most wondered at was, that she had no sore mouth nor sore throat ; that she slept as well upon the matter in the night, as if she had been well, and lay awake most part of the day. When the time came that the small-pox were to die away, as far as I could perceive she had no second fever, nor was worse than before, but only a little uneasy from the soreness. We did nothing at all to her face. When the scabs were off, there appeared no disfiguring seals nor pits in her face ; and to this day, unless you look very near, and almost on purpose, you can not see that she has had the small-pox ; those pits that are, are so small as not to be discerned in common conversation. In short, I do not remember that ever I saw any one that had them worse, that is,

more of them. I am sure never any with so many, that had them better, and was better with them, and after them."

*Small-pox among the Indians.*—Dr. Gilbert B. Champlin, formerly of the United States Army, gave Dr. Gleason, of the Water-Cure Establishment, Elmira, N. Y., the following facts in regard to the method of treatment adopted by the Indians of our country. The account is as follows:

"In the year 1813, while the army lay near to Buffalo, a body of friendly Indians were encamped at no great distance from the main army. Information was received that the small-pox had broken out among the Indians, and that three or four of the surgeons, or mates, were to be detached to go and attend upon them. The order soon came, and I chanced to be one of the number. We repaired with promptness to the Indian camp, and commenced our medical treatment according to the rules laid down in our books, for at the time I knew nothing but what I learned from my books. Cathartics, febrifuges, diaphoretics, etc., etc., were given, in hopes to allay the violence of the virus. But we soon found ourselves in trouble from a new and unexpected circumstance.

"In spite of all our exertions, some of the Indians would go and plunge head-foremost into a neighboring creek of cold water; in some instances, when the eruption was at its height. We remonstrated with the chiefs of the tribes; we begged and pleaded of them to refrain from such awful practices; we told them they would surely die; but all such persuasions proved of no effect; they continued such practices daily in spite of us.

"It was finally concluded that I should be deputed to the surgeon-general, to lay our grievances before him, and obtain his instructions in the matter. I accordingly waited upon him, and told him that nearly half of our patients were plunging into cold water, once or twice every day. He agreed with me, that they would stand a great chance to die, but said, 'They are an untamable set of creatures; you must go back, sir, and do with them the best you can.' I immediately returned, and continued our treatment according to our books; but in spite of our books, powders, and skill, a number that we treated died. But to the astonishment of us all, *every one of them that plunged into the cold water recovered!* Their skin was less pitted, and they came up strong and well. The above circumstance led me to consider much upon the use of cold water in every kind of inflammation."

The good effects of the water-cure, as well as the apparent disregard of danger from acute disease at Graefenberg, may be seen from the following case, related by Mr. H. C. Wright:



"While at Graefenberg, we had a case of malignant small-pox, and the patient lay in the main building, near the passage, through which we all passed to and from our meals three times a day. The bathman who attended him attended other guests, and we visited him without fear, each knowing that if we should take the infection, the disease was entirely under the control of the water-cure. The patient was confined to his room fourteen days, covered with the pustules from head to foot. I saw him while in this state, and a more loathsome object I never beheld. When he recovered sufficiently to leave his room, he mixed freely with the other guests, and in about three weeks almost every trace of the disease had passed from his face. Wet sheets and tepid and cold baths were the only remedies employed, and a constant supply of pure cold air was admitted, by day and night, through the open windows of the chamber. The woman who washed the wet sheets and bandages used by this patient took the disease, but it was soon conquered by the cold-water remedies."

Captain Johnston, the able commander of the steamship Washington, informed the author that a few years since, in a passage between Havre and New York, thirty-six of his passengers in the steerage were attacked with small-pox, all having it at the same time. Being well aware of the good effects of the cooling treatment, he had the sick persons all placed in as cool a part of the ship as possible; extra wind-sails were arranged to give a free supply of fresh air; they were allowed to take, as freely as they desired, of cooling drinks; were kept as cleanly as possible, and very sparing nourishment only was allowed during the disease. No medicine was used, and in a few days every one of these persons recovered. This is a striking example of the beneficial effects of the cooling treatment in this terrible disease, and nothing but the best and most judicious management, amid the disadvantages of a medical treatment in the steerage of a ship at sea, could be the means of bringing about such a salutary result.

Dr. John Sigmund Hahn, of Schweidnitz, Silesia, Germany, in 1738, remarked, that "it (water) is equally beneficial in measles and other rashes. Scarcely any one of them died; and in small-pox not one fourth of the number die that usually perish under the hot regimen. Of 156 small-pox patients which a neighboring physician had treated in this way, only eight died, although the disease raged at the time in a virulent manner. In 1737, during the prevalence of a malignant epidemic, accompanied with *petecchiæ*, very few died who were submitted to this treatment, although they were washed until they became very cool, even during the continual and debilitating sweats."

Elsewhere this author observes: "In exanthematous diseases, at

small-pox, measles, scarlet fever, and other rashes, we may freely wash with cold water from first to last, during the whole course of the disease, in order to prevent the fever from becoming too violent. The skin is thus rendered more soft, so that the acrid matter can the more easily pass through it. In small-pox, the corrosive quality of this acrid matter, so that it does not eat into the skin, leaves no scars behind; and very few patients who have been treated this way have been marked by the disease. The Africans wash all their small-pox patients. A captain having a cargo of slaves among whom this disease made its appearance, treated them after the European mode, putting the patients between two mattresses, and otherwise heaping bedclothes upon them, with the view of bringing out the disease. In great distress, they cried and begged to be allowed to treat themselves according to their own method; upon which the other slaves tied ropes around the bodies of the sick, and dipped them frequently during the day into the sea, drying them afterward in the sun, and in this manner they were cured, and scarcely one died."

Dr. Baynard, in 1706, gave the following cases: "Dr. Yarborough told me that his kinsman, Sir Thomas Yarborough, sent him a letter from Rome, wherein he gave him an account of a footman of his, who, when delirious in the small-pox, got from his bed, and in his shirt ran into a grotto of a cardinal's, where there was water, in which he plunged himself, but was presently got out. The small-pox seemed to be sunk and struck in, but upon his going to bed, they came out very kindly, and he safely recovered.

"But my worthy and learned friend Dr. Cole showed me an account from an apothecary in Worcestershire, whose name, I think, was Mr. Mathews, the substance of which was, that a young man, delirious in the small-pox, when his nurse was absent jumped out of bed, ran down stairs, and went into a pond of water. The noise awaked the nurse, who followed with an outcry, which outcry raised the *posse* of the family, who surrounded the pond; but he parleyed with them, and told them that if any body came in he would certainly drown them, and that he would come out when he saw his own time; and accordingly did so, and walked up stairs, and sat (in his wet shirt) upon a chair by the bedside, in which posture Mr. Mathews found him when he came into the chamber. *Note here*, that the apothecary lived three or four miles from the place, and that he was in the water and on the chest all the while, in his *wet shirt*, that the messenger was gone for him. This apothecary, Mr. Mathews (for so I take his name), asked him how he did. He answered, Pretty well. He asked him if he would have a clean shirt and go into bed. He said by and by he

would, which he accordingly did. When in bed he asked the apothecary if he had nothing good in his pocket, for he was a little faintish. He said he had a cordial, of which the patient drank a good draught, so went to sleep, and awaked very well, and in a little time recovered. Now, as Dr. Cole observed very well—"A man," quoth he, "would not advise his patients in such a case to go into cold water, though this man escaped without injury; but it gives a good occasion to reflect on the many mischiefs that attend the small-pox in the *hot* regimen, since such extravagant and intense cold does so little or no harm."

"Dr. Dever, of Bristol, told me of a vintner's drawer in Oxford, that, in the small-pox, went into a great tub of water, and there sat at least *two hours*, and yet the fellow recovered and did well.

"A gentleman, delirious in the small-pox, ran in his shirt in the snow, and knocked them up in the house when he went, they being all in bed; the small-pox sunk, and yet by the benefit of a looseness, he recovered.

"I remember about two years since a learned gentleman, a divine, told me in the country where he was beneficed, in a small town not far from him, many died of a malignant small-pox. A certain boy, a farmer's son, was seized with a pain in his head and back, vomited, was feverish, etc., and had all the symptoms of the small-pox. This youth had promised some of his comrades to go a-swimming with them that day, which, notwithstanding his illness, he resolved to go, and did so, but never heard more of his small-pox. Within three or four days the father was seized just as the son had been, and he was resolved to take Jack's remedy. His wife dissuaded him from it, but he was resolved upon it, and did immerse in cold water, and was after it very well. The worthy gentleman who told me this story, promised to give me it in writing, with the persons' names and place, but I neglecting it, he went out of town in two or three days, so I lost the opportunity of being better informed.\*

"Mr. Lambert, brother to my worthy friend Mr. Edmund Lambert, of Boyton, in the county of Wilts, told me than when he was at school in Dorsetshire, at least thirty or more of the boys, one after another, fell sick of the small-pox, and that the nurse gave them nothing but

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\* It would not probably be safe to infer that in these cases the eruption of the small-pox was actually prevented by the immersion in cold water. Yet such might have been the case. Such treatment in the very beginning of a disease sometimes has a most wonderful effect, as was proved by Dr. Currie in his fever cases. I have known a number of persons who had all been daily exposed to the small-pox, to have, in due time, all the premonitory symptoms of the disease, and yet pass free from the eruption. These persons every one bathed often, and lived nearly fasting while the symptoms were upon them. But in a still larger number of cases where persons have practiced the same prevention, the disease has come out, but usually in a very mild form.

milk and apples in the whole of the course of the disease, and they all recovered. There was but one dissenting boy from that method, who by command went another course, and he had like to have died; nay, with very great difficulty they saved his life. And since, another gentleman told me that himself and divers others were cured by the milk and apples, and buttered apples, in the worst sort of small-pox.”\*

Dr. Currie, in 1797, gives the following cases: “The singular degree of success that on the whole attended the affusion of cold water in typhus, encouraged a trial of this remedy in some other febrile diseases. Of these, the small-pox seemed more particularly to invite its use. The great advantage that is experienced in this disease by the admission of cool air, seemed to point out the external use of cold water, which being a more powerful application, might be more particularly adapted to the more malignant forms of small-pox. The result corresponded entirely with my expectation. Of a number of cases in which I witnessed the happy effects of the affusion of cold water, I shall give the following only:

“In the autumn of 1794, J. J., an American gentleman, in the 24th year of his age, and immediately on his landing in Liverpool, was inoculated under my care, the prevalence of the small-pox rendering it imprudent to wait till the usual preparations could be gone through, or, indeed, till he should recover from the fatigues of the voyage. He sickened on the seventh day, and the eruptive fever was very considerable. He had a rapid and a feeble pulse, a fetid breath, with pain in the head, back, and loins. His heat rose in a few hours to 107 degrees, and his pulse beat 119 times in a minute. I encouraged him to drink largely of cold water and lemonade, and threw three gallons of cold brine over him. He was in a high degree refreshed by it. The eruptive fever abated in every respect—an incipient delirium subsided, the pulse became slower, the heat was reduced, and tranquil sleep followed. In the course of twenty-four hours the affusion was repeated three or four different times at his own desire, a general direction having been given him to call for it as often as the symptoms of fever returned. The eruptions, though more numerous than is usual from inoculation, were of a favorable kind. There was little or no secondary fever, and he recovered rapidly.

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\* Apples are a very watery, cooling regimen. The old-fashioned mode of giving scraped apple tarts, as one of the first things of nutriment, I have always practiced. Milk, although mostly composed of water, must be given cautiously in inflammatory diseases. As for the butter mentioned by Dr Baynard, it were better avoided, although the article used fresh, as it generally is in the old country, is a very different thing from that so much impregnated with salt, as is generally used in this country. Salt is very heating and inflaming in its nature.

"In situations where the eruptive fever of small-pox is clearly distinguishable, and where it does not abate sufficiently on the admission of cold air, the affusion of cold water may be resorted to with confidence and safety, regulated however in this application, as in every other, by *the actual state of the patient's heat, and of his sensation of heat*. In the confluent small-pox, however, after the eruption is completely formed, this remedy can not perhaps be used with advantage. The following case will illustrate this position.

"H. A., aged 23, an American mariner, fell under my care (*Dec. 7*) on the third day of the eruption of the small-pox; that is, on the sixth day of the disease. His pulse 114, and feeble, his heat 109 degrees. His head, back, and loins ached severely; thirst great; skin livid; small-pox confluent.

"He was put on a milk-diet; gentle mercurial purgatives were ordered from time to time, and an opiate every night at bedtime. Lemonade was given largely at first by itself, and afterward mixed with wine, and the affusion of cold water was directed in the usual way. In ten minutes after the affusion, the pulse was 96, the heat 98 degrees; the liver of the skin was much diminished, but the pains were not relieved.

"*Dec. 8.—Noon.*—Pulse 96, soft and regular; thirst gone; respiration slow and natural; heat 97 degrees. The affusion was ordered to be repeated; ten minutes after, pulse 84, and feeble; heat 84 degrees.

"*Dec. 9.—Noon.*—Pulse 88; heat 93 degrees; the cold affusion was not repeated in this very reduced state of heat; the decoction of bark was ordered, and a pint of wine daily in lemonade.

"*Dec. 10.—Noon.*—Pulse 116, and full; heat 98 degrees; respiration still easy; expectoration considerable, and viscid; thirst less; eyes quite closed; head swelled; a complete union of the pustules on the face. Bark and wine continued, with the opiate at night.

"*Dec. 12.—Pulse 118; heat 96 degrees.* A bucket full of water of the temperature of 92 degrees was poured over him. He appeared refreshed at the moment; ten minutes after, pulse 112; heat 94 degrees. Complained of being chilly. Respiration still easy—free of pains, and his face less swelled. Complained of his throat. A blister was applied to it all round.

"*Dec. 13.—Noon.*—Pulse 118; heat 96 degrees; respiration still free, but his throat very sore. Medicines were continued, but the affusion of tepid water was not repeated.

"*Dec. 14.—Noon.*—Pulse 138; heat 100 degrees; respiration had now become laborious, and the expiration difficult. The throat was

much swelled. He was frequently sponged with tepid water, and the medicines continued.

"*Dec. 15.—Noon.*—Unfavorable symptoms increased.

"*Dec. 16.—Noon.*—Vomiting came on, which was relieved by opium. His senses and his intellect remained acute till within an hour of his death, which happened at eight o'clock in the evening of this day.

"If this case be more detailed than seems necessary, let this be excused, as it is the first in which the actual heat in confluent small-pox has been recorded. It is here given accurately, from the period when the disease came under my care.

"In regard to the effects of the cold affusion, it may be observed, that this remedy was not used during the eruptive fever, nor till three days after the eruption had appeared, and the character of the disease was decided. In the stage in which it was employed, the fever and the heat were abating, as is usual after the eruption; and in all cases in which the heat is sinking, the application of cold must be made with great caution, as has already been mentioned. After the second affusion (on the 8th) the heat sunk below its natural standard, and continued below it for some time; so that this remedy became inadmissible. The disease went through its usual course. The tepid affusion on the eighth day of the eruption (*Dec. 12*) was used in part to wash off variolous matter, and in part to produce refreshment. The heat which was before 96 degrees, sunk two degrees, so that it could not with safety be continued, for experience has proved that the tepid affusion is a powerful means of diminishing heat. The heat rose again with the secondary fever, and the patient died of the affection of the throat, as I believe is general in the confluent small-pox.\* It will be at once perceived, on the principles already laid down, that in a disease like this, the affusion of cold water could only be essentially useful during the eruptive fever. It is during the eruptive fever that the quantity of the assimilation is determined, as well as its kind. This is, I believe, invariably found to bear an exact proportion to the eruptive fever, and whether we consider the eruptive fever as the cause or effect of the assimilation, there is every reason to expect from the laws of the living system, that the diminution of this fever will diminish the quantity, and meliorate the quality of the variolous eruption.

"In the case just related, the heat during the eruptive fever (judging from trials in similar situations) had risen to 106 degrees or 107 de-

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\* See *Zoonomia*, vol. II., page 287.

grees;\* but it had sunk to 100 degrees before the cold affusion was employed. It may easily be conceived that this remedy could have been employed to a much greater extent, and that its effects would have been far more salutary, if it had been used throughout the previous fever. That it would have essentially altered the character of the disease, I presume not to assert. This, however, I can declare, that in all the cases in which I have used the affusion of cold water during the eruptive fever, however severe the symptoms may have been, these symptoms instantly abated, and the disease assumed a benignant form. The case of Mr. Johnston, already given, will illustrate this observation; and six or seven others I might adduce to the same purpose. As yet my experience extends no further."

The subject of *inoculation*—although the practice has for the most part gone out of date—is so intimately connected with a full knowledge of small-pox, and being, moreover, a very interesting topic, I have concluded to devote a few pages to its consideration. The historical facts which I shall make use of are drawn mostly from a volume now out of print. I refer to Thatcher's Medical Biography.

It is a singular fact that, when small-pox is introduced into the system by direct contact, that is, by inoculation, it is much milder than when it is taken in the ordinary way of contagion through the atmosphere. Its effect is to lessen the number of pustules, and in the same proportion the violence of fever and the general characters of the disease.

It is curious, also, that the disease appears much more quickly after it has been communicated by inoculation than by the ordinary way. When it is communicated by contagion it is usually twelve to fourteen days in making its appearance; whereas, when it is communicated by inoculation it usually appears on the seventh, or at most eighth day. Hence we may, by inoculation, anticipate infection; that is, if a person has been exposed to small-pox and wishes to have it in a lighter form, he has only to be inoculated, and thus he gets it in milder form, the artificial being always lighter than the natural.

Inoculation appears to have been employed in the East, particularly in China and Hindostan, from time immemorial. Various methods of performing the operation were resorted to, the best and simplest which has ever been devised having been by merely charging a common needle with the variolous matter and introducing it transversely under the cuticle. Other methods are likewise resorted to. The Chinese,

\* 1803. I now believe that the heat does not rise so high in any stage of confluent small-pox. See the *Additional Reports*.

it is said, were in the habit of placing the crusts taken from small-pox patients in the nose, having frequently kept them in jars for years previously. Sometimes they reduced the crusts to powder and made the children use them like snuff, which was called "sowing the small-pox." Among the Brahmins a particular caste have charge of inoculation. They prepare the patient for the process by some months of abstinence, even from milk and butter; and the Brahmins, it will be remembered, do not eat flesh. In this way we may imagine the patient was pretty well prepared for the disease. The operation was performed by scratching the surface of the skin, and then binding upon the scratch a piece of cotton moistened with the small-pox pus. In all the Eastern countries, and in Africa, inoculation has been known and practiced for a great number of years—how many, it would be impossible to determine.

"The first employment of inoculation in Great Britain," says Dr. Good, "seems to have been the result of some fortunate observation, made, like that of cow-pox inoculation, in the very rudest parts of it." The practice of "buying" the small-pox, which was in fact the consummation of the disease by inoculation was, according to this author, prevalent in Wales at a very early period. It was also early practiced in the highlands of Scotland. In the north of Scotland, it is said also, that the people were in the habit of giving it to their children by putting them in bed with those who were laboring under the infection, and in other cases by tying threads soaked with small-pox matter upon their wrists. But the practice came ostensibly to Great Britain from Constantinople.

In 1721, Lady Mary Montague, who had witnessed the success of inoculation in Turkey, and having had a son successfully submitted to the practice there, had her infant daughter inoculated in London. Yet so little acquainted with its success were the public, and even the profession at this period, and so cautious in giving it credit, the barbarous experiment as it was then supposed to be was ordered to be made in the same year. Caroline, Princess of Wales, wished to have her own children inoculated, but was desirous that the experiment should first be made on six felons in Newgate. Five of these did well; but the sixth, having had the disease previously, did not take it. On account of being submitted to the so-called barbarous practice, they were all saved from execution. These experiments gave countenance to other attempts; and yet the innovation was "sharply and pertinaciously opposed." Many clergymen and dissenting ministers, it is said, "raved" against the practice from the pulpit, calling inoculation "the offspring of atheism." Those who performed the operation were



called "sorcerers," and the whole thing was pronounced as a "diabolical invention of Satan." Dr. Wagstaffe, a man of high medical standing, invidiously remarked, "that posterity will scarcely be brought to believe that an experiment, practiced only by a few ignorant women, should so far obtain in one of the politest nations in the world, as to be received into the royal palace." One of these writers is said to have declared "this new practice to be founded in atheism, quackery, and avarice, which push men to all the hellish practices imaginable; men murder fathers, mothers, relatives, and innocent children, and any that stand in the way of their wicked desires." But of all the rancor and hatred exhibited toward the innovation, a sermon preached by the Rev. Mr. Massey, on Sunday, July 8th, 1722, against "The Dangerous and Sinful Practice of Inoculation," was perhaps the most conspicuous. His text was, "So went Satan forth from the presence of the Lord, and smote Job with sore boils, from the sole of his foot unto his crown." The preacher would have it *that the Devil was the first inoculator and that poor Job was his first patient*. This conceit of the reverend divine was said to have given rise to the epigram—

'We're told by one of the black robe,  
The Devil inoculated Job.  
Suppose 'tis true what he does tell,  
Pray, neighbors, did not *Job* do well?"

It was contended on the part of these objections, "that as the small-pox was a judgment from God for the sins of the people, to endeavor to avert the stroke would but provoke him the more; that inoculation was an encroachment upon the prerogatives of Jehovah, whose right it is to wound and to smite; and that as there was an appointed time to man on earth, it would be useless to attempt to stay the approach of death."

There were others, however, who were of different opinion. Bishop Maddox and Dr. Doddridge defended inoculation publicly, and in doing so employed scriptural quotations. The celebrated Dr. Watts, who became a great friend of Dr. Boylston, of Boston, was also an advocate of the practice. It did not, however, gain favor rapidly, for it appears from the published accounts that only seven hundred and sixty persons were inoculated all over England from 1722 to 1727, while in France the practice was absolutely forbidden.

As a reason why the public were so slow in adopting inoculation, Dr. Good remarks, that unfortunately the practice of treating the disease with cordials and a hot regimen at this time prevailed, and was too generally applied to the inoculated as well as to the natural process, by many of which the former was often rendered a severe and.

in many cases, a fatal disease, though it was impossible for the dullest intellect to be altogether insensible to its high comparative advantages. By degrees, however, as Dr. Good tells us, the refrigerant plan obtained a triumph, and the triumph of inoculation was a synchronous step. "Yet half a century afterward, the exploded plan was still persevered in by some practitioners, and it is instructive to mark the comparative mischief that still accompanied it. 'I found,' says Sir George Baker, writing in 1771, 'that in the counties of Essex, Norfolk, and Suffolk many thousands of people of all ages and constitutions, and some of them of every apparent disadvantage, had been inoculated with general good success, whereas at Blanford, in Dorsetshire, out of three hundred and eighty-four persons who were inoculated, thirteen actually died, and many others narrowly escaped with their lives from the confluent small-pox. This gives us a direct mortality of something more than one in thirty; and it is almost needless to add that in the successful districts here alluded to, the cooling plan was prevalent, and at Blanford that of hot beds and a warm regimen.'"

The practice of inoculation was commenced in this country under the same unfavorable circumstances as in the old country. In the year 1721 the small-pox appeared in Boston, continuing in its usual desolating career, carrying with it the utmost terror and confusion. On this alarming occasion, Dr. Cotton Mather, the learned and distinguished divine, communicated to Dr. ZABDIEL BOYLSTON, a communication in the transactions of the Royal Society, announcing the discovery of a new method of mitigating the virulence of this fatal disease. This intelligence was from Drs. Zimoni and Pitarini, being a concise account of the process of inoculation as then practiced in Turkey, by scarifying or scratching the skin, and applying the matter under a nut-shell, but giving no other directions concerning the practice or mode of treatment. Dr. Boylston was forcibly impressed with the benefit of the discovery, and accordingly, after deliberating on the most safe and expeditious mode of thus artificially introducing the disease into the system, he communicated to the medical gentlemen in Boston the plan he proposed to adopt, and the source whence he derived the first hints of the operation, desiring their concurrence in the undertaking. But Dr. William Douglass, a Scotch physician of some eminence, who had seen the publication in Dr. Mather's possession, and Dr. Dalhonde, a French physician, also of some repute in Boston, united in a violent opposition to the plan, and publicly denounced it as introductory of the plague, which had so often visited and nearly depopulated many cities in Europe and Asia; and declared that the attempt to put it into practice would be no less criminal than murder.

The other physicians in Boston not only refused their co-operation in so novel and bold an experiment, but condemned it in their writings, and opposed it in every shape. Dr. Boylston, however, was a man of benevolence and courage, and finding before him a promising opportunity for diminishing the evils of human life, he was not afraid to struggle with prejudice, nor unwilling to encounter abuse in the noble cause. The clergy in general were disposed to aid the project, but a few of the less liberal were instigated to preach against it, and such was their influence, added to that of Douglass and Dalhonde, that the inhabitants became enraged, and were excited to commit atrocious acts of outrage on the person of Dr. Boylston. They patrolled the town in parties with halters, threatening to hang him on the nearest tree. The only place of refuge left him at one time, was a private place in his house, where he remained secreted fourteen days, unknown to any of his family but his wife. During this time parties entered his house, by day and by night, in search of him. Nor was this all; their rancor extended to his family; for one evening, while his wife and children were sitting in the parlor, a lighted hand-grenade was thrown into the room; but the fusee, striking against some furniture, fell off before an explosion could take place, and thus providentially their lives were saved. Even after the madness of the multitude had in some measure subsided, Dr. Boylston ventured to visit his patients only at midnight, and in disguise.

Undismayed by all this violence, and unsupported by the friendship of any but Dr. Mather, he commenced, on the 27th of June, 1721, while the small-pox was in its most destructive progress through the town, this untried experiment of inoculation on his own son, a boy of thirteen years of age, and two blacks in his family, one of thirty-six and the other of two years of age, and on all with complete success. This rekindled the fury of the populace, and induced the authorities of the town to summon him before them to answer for his practice. He underwent repeated examinations, and although he invited all the practitioners in Boston to visit his patients and judge for themselves, he received only insults and threats in reply. The small-pox ceased its ravages in May, 1722; and during its prevalence, Dr. Boylston continued to inoculate all who could be induced to submit to it. He performed the operation with his own hand upon two hundred and forty-seven of both sexes, from nine months to sixty-seven years of age; in Boston and in the neighboring towns; thirty-nine were inoculated by other physicians after the tumult had in some measure subsided, making in the whole two hundred and eighty-six; of whom only six died, and of these three were supposed to have taken the disease in

the natural way, some days previously to their being inoculated; three of those who died were his oldest patients. According to the account published by the selectmen, it appeared that during the same period, five thousand seven hundred and fifty-nine had taken the natural small-pox, eight hundred and forty-four of whom fell victims to the disease, being more than one in six. In the vicinity of Boston it had been still more malignant and fatal. The utility of the practice was now established beyond dispute; and its success in Boston encouraged its more general practice in England, in which country it had been commenced upon the daughter of Lady Montague, and the convicts before mentioned, in April of the same year in which it was commenced in Boston.

In the year 1752 the country was again scourged by a visitation of small-pox, and by order of the magistrates an account was taken of all who were affected with the disease, either in the natural way or by inoculation in the town of Boston, and rendered on oath, by which it appears that the number of inhabitants amounted to 15,734; the whole number of small-pox patients the natural way was 5,544, of which 514 died, about one in ten; the number of inoculated was 2,113, of which 30 died, or about one in seventy. In the year 1764, three thousand persons recovered from inoculation, and only eight died. Up to this time the method of treatment in small-pox had not been at all judicious; practitioners in general had not yet abandoned the very injurious method of treating the disease by heating and stimulating the system. Contrary to the cooling system of Sydenham, the sick were warmly covered in bed in warm or heated rooms, while heating or stimulating applications were made, with the view of keeping out the eruption and promoting a profuse perspiration; and some there were, as Dr. Thatcher tells us, who would not permit the linen of the sick to be changed during the whole course of the disease, however copiously the bodily filth might have been accumulated. But about the year 1766, Dr. Sutton, an English physician, and Baron Dimsdale, promulgated the improved method of treatment by exposing patients to cool air, allowing them to drink cold water, and the antiphlogistic plan generally. After a time old prejudices vanished, and the new method became general.

The small-pox again visited the town of Boston as an epidemic, in 1792. The whole town was inoculated in three days, to appease the infatuation of the inhabitants with respect to the danger of the deadly pestilence. The hurry and confusion in which inoculation was resorted to on this occasion, precluded the possibility of affording in every instance the requisite attention, and of adopting the necessary measures

for the best results. The number of inoculated was 9,152 persons indiscriminately, and 165 deaths only were the consequence. These were chiefly the people of poor families, many of whom were destitute of the comforts of life.

But great as were the comparative advantages arising from inoculation, even in its lowest scale, there was one evil always accompanying it, which was the wider diffusion of the variolous poison in the atmosphere. There was, indeed, good ground for believing that the apparent blessing of inoculation was on the whole a greater public evil than good, because the multitude who would not submit to the process, received the disease more generally than they otherwise would; in other words, the wider spread of variolous poison would cause on the whole a greater number of deaths. It was computed by Dr. Good that the deaths from small-pox, after the introduction of inoculation, increased in consequence of the more extensive diffusion of the variolous contagion, in the proportion of fourteen or fifteen on every hundred; and he affirmed the British bills of mortality gave even more than this. Hence we see, that if the whole compass of things were taken into the account, there was reason to oppose the practice, notwithstanding the palpable fact that its intrinsic merits were so great.

I have remarked that when the small-pox contagion is introduced into the human system by inoculation, it is rendered much milder than when it is received in the ordinary way; but no satisfactory reasons have as yet been given why such should be the case. Nor will it be possible, probably, ever to account for the fact. The phenomena, like many others relating to the human body, must probably forever remain one wholly inscrutable to our minds. Something unquestionably was attributable to the course of preparation under which the system was put previous to inoculation; but the same mildness of character has not been found to obtain, when the same means have been used previously to the taking of the natural disease. When received by inoculation under the usual precautions, the eruption is commonly distinct and widely scattered; and what is still more remarkable in this form of the disease is, that when the eruption is full and even confluent, the secondary fever, which in other cases is so alarming, is here for the most part only slight, and in many cases entirely absent. For this reason it was found that variolous inoculation might be submitted to with almost absolute safety, by feeble infancy as well as old age. It was regarded, however, that pregnant women should not be subjected to it, nor infants till after the stage of teething, if a choice of time could be had. In the former case it would be likely to commu-

nicate the disease to the child as well as the mother, and in the condition of pregnancy, there is always more danger to be apprehended from inflammatory diseases than at other times. In the case of young children there would be more danger from inoculation during the period of teething than at ordinary times; and the younger the subject, always the more danger from variolous disease.

In closing what I have to say on the subject of inoculation, I remark that the process is attended with the following advantages and disadvantages:

1. Inoculation produces a milder form of the disease than the natural small-pox, and one which is well known to be less fatal.
2. It produces it in a shorter time, thus giving us a chance to anticipate the true disease.
3. In the practice of inoculation, there is time for the previous preparation of the system by diet and other sanitary regulations.
4. The disadvantages of inoculation are, that it probably spreads the disease more widely in a community than would otherwise be the case, and causes on the whole a greater number of deaths.

#### VACCINIA—COW-POX.

Cow-pox is believed to be essentially the same disease as variola; but for obvious reasons, it is necessary to treat of it as a separate affection.

This disease, we are informed, attracted attention in the county of Dorset, in England, about sixty or seventy years since, as a pustular eruption derived from infection, chiefly showing itself on the hands of milkers who had milked cows similarly disordered. It had been found to secure persons from the small-pox; and so extensive was the general opinion upon the subject, even at the time before us, that an inoculator who attempted to convey the small-pox to one who had been previously infected with the cow-pox, was treated with ridicule. A formal trial was made, however, and it was found that no small-pox ensued. About the same time a farmer of sagacity of the name of Nash, duly attending to these facts, had the courage to attempt artificial inoculation on himself, and in the attempt is said to have succeeded completely. Similar facts, and numerous examples of them, were accordingly communicated to Sir George Baker, who, having engaged not long before in a most benevolent though highly troublesome controversy respecting the cause of the endemical colic of Devonshire, was unwilling, notwithstanding his triumph, to tread again the thorny paths of provincial etiology. Gloucestershire, however, another dairy county had witnessed the same disease, with similar consequences;

and the same opinion generally prevailing in distant districts of both countries, afforded proof that the power thus ascribed to cow-pox was not wholly visionary.

In the earlier times of vaccination there was great opposition to the practice; nearly or quite as much, probably, as there had been previously to inoculation. Few men have had more opposition to contend with, or more obstacles to encounter, than Dr. Jenner had; and whatever may be said for or against the real merits of the practice, he no doubt was honest in his recommendation of it, and had to toil and suffer as much for opinion's sake as any benefactor the healing art has known. By those who opposed the practice, cases were published in which it was asserted that vaccinated persons became covered with hair, and even exhibited horns and tail; and that of a child was cited, whose natural disposition was so brutified by vaccination that it ran on all fours, bellowing like a bull; and Jenner himself was caricatured as riding on a cow.

"Just the same fury," says Dr. Elliotson, "was excited among medical men when vaccination was promulgated by Dr. Jenner, that had been excited when inoculation was first made known to them. It was said that it was taking the power out of God's hand; that God gave us the small-pox; and that it was impious to interrupt it by the cow-pox. When I was a boy I heard people say that it was an irreligious practice, for it was taking the power out of God's hand; forgetting that it was merely using that power which God had given to us. Sermons were preached for it, and against it; and handbills were stuck about the streets. I recollect seeing it stated in a handbill, that a person who was inoculated for the cow-pox had horns growing in consequence of it. Many were said to have died of mortification produced by this practice. One of the surgeons at St. Thomas' Hospital, there being no clinical lectures then, used to give gratuitous lectures against the cow-pox, in which he advised the students not to resort to such a practice. He was interred in London; and by his direction a tablet was erected to his memory, on which was inscribed the fact that he was all his life strongly opposed to cow-pocking. His rancor did not cease even with his death. It appears that a great want of candor and of principle was manifested, and that an account was forged, setting forth a number of deaths as having arisen from the disease."

Dr. Jenner lived, however, to see his doctrines become generally respected. He died at length suddenly, of apoplexy, on the 25th of January, 1823; and the last words which he uttered were, "I do not marvel that men are grateful to me; but I am surprised that they do

not feel gratitude to God for making me a medium of good." On his monument the following lines are engraven :

"Within this tomb hath found a resting-place,  
The great physician of the human race—  
Immortal Jenner . whose gigantic mind  
Brought life and health to more than half mankind.  
Let rescued infancy his worth proclaim,  
And list out blessings on his honored name !  
And radiant beauty drop her saddest tear,  
For beauty's truest, truest friend lies here."

After all, it is doubtful whether this discovery, which appears to have been of such great benefit relating to mankind, is not, in reality, an evil. But of this I shall say more presently.

In the natural for of cow-pox, as it is received from milking or handling a diseased animal, the vesicles, which are more or less numerous, appear on the hands or whatever parts have been in contact with the affected part of the animal. The eruption is of a bluish tint; the fluid is at first limpid; afterward opaque and purulent; and often there is enlargement of the axillary glands (in the armpits), and considerable fever.

In cow-pox, the fever comes on with the usual symptoms of languor, pain in the head, loins, and limbs, accompanied by chills and heat, a quick pulse, and sometimes with vomiting. Delirium sometimes occurs in consequence of the head being affected; and this may continue even after the before-mentioned symptoms have passed off. At about the seventh day the fever abates. The vesicles which burst from distension, usually, in three or four days, heal slowly, and sometimes take on a phagadenic appearance. The fluid discharged from the sores is of a highly contagious nature; and it may be necessary, when having the disease, to guard against scratching any part, as in such case the matter, if applied to the scratched part, would be quite certain of becoming affected.

*Identity of Vaccinia and Small-pox.*—That small-pox and cow-pox are essentially the same disease, modified only by the peculiarity of animal constitution, was the opinion of Dr. Jenner, to whom the world is indebted for the general diffusion of a knowledge concerning it. That the two diseases are essentially one and the same has been proved in modern times. It is found, that if a cow be inoculated with the matter of small-pox taken from a human being, and then if matter taken from the same cow is introduced into another human subject, that is, one who has obtained a protection from the disease, the cow-pox is the result. The first successful experiment of this kind is said to have been accomplished by Dr. Sonderland, of Bremen, in Germany; and from



the accounts which appeared in the German journals of 1831, his mode consisted in fastening upon the backs of cows the woolen bedclothes of small-pox patients who died with the disease in its most malignant forms. These experiments have been repeated, in different countries, with a similar result; as, for example, by Dr. Griva, chief of the vaccine establishment at Turin; by Dr. Basil Thiéle, of Kasan, in South Russia, and by Mr. Ceely, of Aylesbury, England. In Italy the experiment was tried on a large scale in 1829, when the alarm of epidemic small-pox induced the Piedmontese physicians to make trials of a variety of new stocks of lymph; but the result, according to Dr. Griva, was, "that no perceptible difference was to be traced between the aspect and progress of the old and the new, the primitive and the long-humanized virus." Dr. Thiéle, in 1836, succeeded in the inoculation of a cow, by inserting the virus in the posterior part of the udder, where the animal could not lick it; and, from the disease thus produced, inoculation of several children was followed by vesicles having all the characters of the genuine vaccinia; but, as it is usual in all cases of vaccine lymph taken fresh from the cow, the constitutional symptoms were more than ordinarily severe. Within two years, upward of three thousand individuals were vaccinated with the virus that had come originally from this source.

*Mode of Vaccinating.*—In regard to the manner of performing the operation of vaccination, it is to be remarked, a variety of methods have been adopted. The one most in use among the physicians of this country is as follows: "Scrape slightly the epidermis on the spot selected, with a moderately dull thumb lancet, until it removes a small amount of the cuticle, in the shape of a slight dust. As soon as the skin underneath becomes pink, or shows very minute points of blood, place a drop of the liquid from the pustule, or from the dried scab, softened and made liquid by water, upon it, and press it beneath the skin by three or four slight punctures with the point of the lancet, just deep enough to tint the matter with blood, but not so as to make the part bleed freely; then keep the arm exposed to the air until the matter dries or hardens. In order to guard against subsequent irritation, tie up the child's sleeve to the shoulder, or cover the spot operated on with a piece of fine linen."

Another method of vaccinating is, to moisten a piece of fine thread with the matter of a pustule or scab, and with a needle draw it through a small portion of flesh pinched up for that purpose. A knot being upon one end of the thread, it will remain without difficulty in the place where it is inserted; and, if the system is capable of receiving the infection, and the matter good, it will be found to take effect.

Any mode that is found to answer the purpose may be adopted ; and children at school have often succeeded in vaccinating each other simply by the use of a pin or needle which had been moistened with the matter from a pustule.

*Preservation of Vaccine Matter.*—Where vaccination is depended upon, a knowledge of the means of obtaining and preserving good matter is an object of importance. Dr. Jenner was in the habit of receiving a drop of the matter, fresh from the pustule, in a little hollow of a square piece of glass, which was then covered by another piece, and both luted together to keep out the air. Some are in the habit of moistening the scab from the part vaccinated, and pressing it firmly between two pieces of flat glass, in which condition it is said the matter may be kept for a considerable time. Another method of preserving the dried scab from the air, is to make a little hollow in a cake of beeswax, and then soften the surface of this and another cake by heat, to make them perfectly smooth, and after placing the scab in the hollow for its reception, press the two cakes together so as to form an airtight box. In this simple way the matter has been kept for a number of months. The matter is also conveyed from one part of the country to another by mail : sometimes simply in the form of a dry scab, and at others upon a small portion of a quill, the end of which has been moistened either in the liquid matter itself or by a solution of the scab, the latter having been moistened with water.

*Phenomena of Artificial Cow-pox.*—Dr. Good's description of the phenomena of the cow-pox, when artificially introduced into the human organism, I shall here introduce :

"In the inoculated cow-pox, from genuine virus, the pathognomic signs are the following: Vesicle single, confined to the puncture; cellulose; bluish brown in the middle; fluid clear and colorless to the last; concreting into a hard, dark-colored scab after the twelfth day. In propagating the disease from the inoculated vesicle, the fluid should be taken before the ninth day, and from as early a period as it can be obtained. After the ninth day it is usually so inactive as not to be depended upon.

"If the fluid be not transparent, it forms a decisive proof, either that it is spurious or imperfect. The puncture should be made as superficially as possible; for if much blood be drawn, the fluid may become so diluted as to be rendered ineffective, or may be entirely washed away.

"As small-pox by inoculation is uniformly a far milder disease, and accompanied with a smaller crop of pustules than when received naturally, cow-pox, by inoculation, undergoes a like change. There is sometimes a little increased quickness of pulse, and constitutional in-

disposition ; and, in very rare instances, a few pustules have been thrown around the areola, or even on the limbs ; but, with these occasional exceptions, the eruption, as already noticed, is confined to the single vesicle produced by the puncture, and there is scarcely any perceptible fever.

“The general progress is as follows : The puncture disappears soon after the insertion of the lancet ; but on the third day a minute inflamed spot becomes visible. This gradually increases in size, hardens, and produces a small circular tumor, slightly elevated above the level of the skin. About the sixth day the center of the tumor shows a discolored speck, formed by the secretion of a minute quantity of fluid ; the speck augments in size, and becomes a manifest vesicle ; which continues to fill and to be distended until the tenth day, at which time it displays in perfection the peculiar features that distinguish it from the inoculated variolus pustule. Its shape is circular, sometimes a little oval ; but the margin is always well defined, and never rough or jagged—the center dips, instead of being polarized, and is less elevated than the circumference.

“About the eighth day, when the vesicle is completely formed, the disease exhibits something of a constitutional influence ; the armpit is painful, and there is perhaps a slight headache, shivering, lassitude, loss of appetite, and increase of pulse. These may continue, in a greater or less degree, for one or two days, but always subside spontaneously, without leaving any unpleasant consequence. During the general indisposition the vesicle in the arm becomes surrounded with a circular inflamed halo, or areola, about an inch, or an inch and a half in diameter ; which is the pathognomic proof of constitutional affections, how slightly soever the internal symptoms may show themselves. After this period, the fluid in the vesicle gradually dies off ; the surrounding blush becomes fainter ; and, in a day or two, dies imperceptibly ; so that it is seldom to be distinguished beyond the thirteenth day from inoculation. At this time the vesicle hardens into a thick scab, of a brown or mahogany color ; and, if not separated antecedently by violence or accident, falls off spontaneously in about a fortnight, leaving the skin beneath perfectly sound and uninjured. The entire progress of the inoculation scarcely opens a door to any medical treatment whatever. No preparatory steps are called for, as in small-pox ; and all that can be necessary is a dose or two of aperient medicine if the constitutional indisposition should be severe or troublesome.”

It has been a question of inquiry among writers on vaccination, as to what influence time exerts upon the protective power of small-pox.

In the early periods of vaccination, from 1800 to 1805, the practice of inoculation after vaccination had been performed, so as to test more fully its protective power, was carried to a great extent; and many thousands, we are told, were thus exposed to the variolous poison without suffering from it. Later, however, the experimental testing was wholly left off; so that very little is known concerning what would be the effect of inoculation at long periods from the time of vaccination. It has been believed by some that the protective power of cow-pox lasts in the system for the space of seven years; but there is probably no distinct period in which it alone acts; the more time elapses, up to the age of twenty-five or thirty, the greater the liability to a failure of its prophylactic power, seems to be the only rule. It is believed, however, that small-pox, taken after vaccination, is very rare under eight years of age; so that its protective power, if this be true, may be considered as nearly perfect during this period of the child's life. About the ninth or tenth year cases of small-pox after vaccination seem to be more common; and still more so at about the age of puberty. From eighteen to twenty-five there is still greater liability to it. "With these facts before us," observes Dr. Elliotson, "it is impossible to conceal the apparent conclusion, that time lessens the power of resistance to the variolous germ." After the individual has arrived at from twenty-five to thirty years of age, there seems to be less susceptibility to variola as life advances, both in cases where vaccination has been practiced and where it has not.

*Re-vaccination.*—With those who place dependence on vaccination as a protection against small-pox, it becomes a question of importance as to whether re-vaccination should ever be practiced; and if so, at what periods of time. The Germans are much in favor of the measure; while the French are somewhat divided in opinion on the subject. If vaccination is to be regarded as harmless in its operation, as many suppose it to be, there can be no reasonable objection to re-vaccination as often as it is desired. If the operation produces its normal effects, the individual becomes protected so far as the process can protect one; while, if it does not cause these effects, no harm is done to the constitution. Hence it has been regarded the best and safest rule to go by, to submit to vaccination all individuals who have not been vaccinated, even if they have had small-pox; to repeat the vaccination ten or twelve years after the first vaccination; and that if this re-vaccination should not prove successful, it will be necessary to repeat it from year to year, until complete success shall follow. Hence it is, that if vaccination is depended on, *the oftener we vaccinate the better.*

But notwithstanding all the recommendations this practice has had

for the last fifty years, there are yet those who entertain honest doubts as to whether it is, after all, on the whole, a benefit to the race. At any rate, the question, like all others, has two sides, both of which demand our most honest consideration. It is certainly true that vaccination does not merit the encomiums which its more early advocates put upon it; nor is it any thing like capable of exterminating small-pox from the world, as was formerly maintained; but that it will, in a large proportion of cases, protect the system from variola, and that in those cases where it fails of this protection, it renders the disease a much milder one, no one will pretend to deny. The only question is, whether, *as a whole*, it is of benefit to mankind?

It is maintained that vaccination, while it affords a good degree of protection from variola, yet renders the system more liable to other diseases. It is affirmed, also, that other diseases are introduced into the system at the same time with the cow-pox. Long-continued and troublesome skin diseases appear to follow it, and in not a few cases the child seems never to enjoy good health after it has been performed. I think any one who has any considerable practice among children in any great city, will be struck with the number of cases he will find of this kind, by questioning parents on the subject. Very likely they will not themselves have noticed the fact; but he will find in numbers of cases, I am confident, the truth of my remarks.

Not only does vaccination cause subsequent unfavorable effects, but it sometimes endangers life at the time; and, in some instances, destroys the child. I have myself known most fearful convulsions to be brought on by it, and that in children apparently of the firmest health. It is no small thing that is capable, by its fermentation in the blood, to render the system proof against so terrible a poison as that of small-pox.

It has been held by some of the most ardent advocates of vaccination, that the proportion of cases in which it fails as a prophylactic against small-pox, is not greater than that in which variola itself, having once passed through the system, fails in preventing a second attack. The burden of authority, however, appears to be against this conclusion. "From some cause or other, as yet unrevealed," says Dr. Eberle, "so many well-attested cases of failure in the preventive power of vaccination have taken place, and so remarkable, of late years, has been the progressive increase of such cases, that the vaccine disease is no longer considered by practitioners a sufficient safeguard in every case from the variolous contagion." Dr. Gregory, referring to the same thing, observes: "This circumstance can not be met by a reference to the fact, that small-pox once gone through does not protect the subject

from a second attack." This author gives the total number of admissions into the small-pox hospital in the different years. In 1810, the proportion of cases of small-pox, after vaccination, to the whole number of admissions, was 1 in 30 ; in 1821, it was one in 4 ; in 1823, 1 in 3½. It is but just, however, to admit that this was the result of observations in one hospital only. Still there is the best reason for believing that the cases in which vaccination fails are becoming more and more common.

It is claimed also in favor of vaccination, that it is often found to cure other diseases. It has been believed on the part of some that certain skin diseases, affections of the eyes, and that tumors and glandular swellings, have all been removed by the effect of the vaccine disease in the system. "Herpetic eruptions after vaccination," says one author, Dr. Eberle, "not unfrequently assume an appearance resembling that of vaccine pustule, and fade with the desiccation and falling off of the scab. Hooping-cough is likewise said to have been arrested at the moment of the appearance of cow-pox ; in other cases it has been said to have moderated the disease, and still others to abridge it. Now if these things are true, and there can be no reasonable doubt in regard to them, it is an important inquiry as to how such a result is brought about. If one disease is strong enough to kill another, is the system benefited thereby? Is it ever a wise practice to send one poison into the system to chase another out? May not the curing of an eruption upon the surface in this way be the same in effect as that of throwing it inward by external applications, a practice which is well known to be fraught with danger to the constitution? These are important questions ; and it is my own belief, that any disease which is capable of swallowing up or destroying another, is more to be feared than the original one. There may be exceptions to the rule ; but that this is a law of nature, I confidently believe. I would rather trust a child of my own with hooping-cough alone, than with that and vaccinia together. I would rather that an eruption upon the skin should be allowed to remain, than to have it removed by this disease ; and so of all the other affections referred to.

I have been for years so much a disbeliever in vaccination, that I would not be willing to have it practiced upon a child of my own. I did not, however, know that there was high authority even among the profession for doubting the utility of the practice, till the winter of 1850-51. At this time, Professor Partlett, a very candid and able man, and lecturer at that time on the Theory and Practice of Medicine in the University of New York, quoted, in his remarks on the causes of pulmonary consumption, on the authority of two French

writers, Barthez and Rilliet, the following facts in regard to vaccination: In 208 children that had been vaccinated, 138 died of tubercular consumption, and 70 of other maladies. In 95 that were not vaccinated, 30 only died of tubercular consumption, and 65 of other diseases. The circumstances connected with the two classes—the vaccinated and the unvaccinated, were as nearly as could be the same. Professor Bartlett did not himself, in consideration of these facts, venture an opinion as to the propriety or non-propriety of vaccination, but would simply be understood as referring to them as matters worthy of serious consideration.

I am now as much as ever opposed to the practice of vaccination. I may be mistaken in my opinions, and may act more from belief than reason; still, I do not wish to conceal my prejudice against the practice. I admit that vaccination is capable, when properly performed, of generally preventing the small-pox; and that in those cases where the disease does appear after vaccination, it is rendered generally much milder and safer by it. But that the system is rendered more liable to *other* diseases, and especially to that most destructive of all human maladies, pulmonary consumption, by vaccination, there is abundant reason for believing. At any rate I am not willing that any child of my own should be submitted to the process.

For the instruction of those who have confidence in the opinions of that great and good man VINCENT PRIESSNITZ, I would remark that I conversed with him at different times on this subject, and that he is most decided in his opposition to vaccination. Having been badly marked by small-pox before he had commenced the practice of Water-Cure, as may be supposed, he has given a good share of attention to the subject. He has very often had occasion to treat the disease; and after all the vast amount of experience he has had in the healing art, he is in no one thing more strenuous than in his objection to vaccination. He holds that it is wrong in any way to poison the system, and that cow-pox renders it so much more liable to take other diseases, that it is far better to avoid vaccination altogether.

#### GREASE-POX.

It is probable that there are other animal poisons besides that of cow-pox which are capable of preventing small-pox, or that are perhaps essentially the same disease, and which when introduced into the system afford an immunity from further attack.

Dr. Jenner found that the same effect was caused in the human body by introducing a portion of the sanious discharge from the heels of horses affected with the disease called *grease*, as that from cow-pox

He conceived the disease of the horse to be the original one, and that the cow-pox in the cow is nothing more than a casual inoculation, produced by the cow's lying down in a meadow where the affected horse had been previously feeding, and her udder coming in contact with the discharge which had dripped on the grass and lodged there."

"So far as can be judged from the few cases before us, performed, indeed, in different countries, but still few in respect to the number necessary to establish a positive proof," observes Dr. Good, "grease-pox seems to have succeeded as well as cow-pox; and hence blacksmiths and farriers who have been infected by the grease, have been for ages considered as generally unsusceptible of variolous contagion."

It is not, however, maintained on the part of any, that grease-pox possesses any advantages over the more common cow-pox; and hence it has not been regarded as necessary to enter into any detailed or extensive set of experiments with the former disease.

#### CHICKEN-POX—VARICELLA.

The disease commonly known by the name of *chicken-pox*, or *swine-pox*, is one of comparatively little importance. But as it may sometimes be confounded with disorders of a much more serious nature, it is necessary that parents should know something about it. It is possible, moreover, for death to result from it, as I have known one instance of the kind myself, in which a young infant of a few days old fell a victim to it. The infant, however, had not its natural fund of vitality, having been born probably about six weeks before its normal time.

This affection begins usually, if not always, as a vesicular disease. The vesicles are succeeded by more or less of pustules. They are generally much less in number than in cases of small-pox, and, it is said, seldom if ever amount to more than two hundred over the whole surface. They come to maturity, likewise, much sooner than those in small-pox, and run through their course much sooner than they do in variola.

"This eruptive disease generally attacks with little or no fever; the appearance of an eruption on the shoulders, back, and face, being often the first symptoms observed. This eruption is speedily converted into vesicles, which are sometimes small, and sometimes, when first seen, about the size of a split pea, perfectly transparent, and covered only by the cuticle, as thin as that separated by a scald, or by a blister; they generally have at first an inflamed areola, but this seems also to be confined to the surface, and there seems to be little if any hardness in the true skin beneath or around them. On puncturing the vesicle, the clear lymph is wholly evacuated, the cuticle falls flat



down, and very little if any hardness is perceived on passing the finger over the collapsed vesicles. The vesicles generally increase in number for several days; and while new vesicles are appearing on some parts of the body, those which at first came out are beginning to shrivel, and the fluid contained in them has become somewhat milky. Many of them are broken by the second or third day, and have a small crust formed on the cuticle, which adheres to the skin beneath, and is surrounded by an opaque or milky fluid, confined by the shriveled cuticle. When the eruption is numerous, the body has the appearance of having been exposed to a shower of boiling water, each drop of which had occasioned a vesicle, or blister; and these are generally on the second or third day, when turgid, broader at the summit than at the base. When the vesicles remain unbroken for four or five days, as is sometimes the case, the covering of cuticle, as well as the contained fluid, becomes opaque, and the latter purulent. The vesicle is then much flattened, and in this stage of the disease it is scarcely to be distinguished from small-pox, unless by the very thin, delicate, and shriveled appearance of the covering cuticle."

It is sometimes very difficult to distinguish between a case of varicella and one of mild small-pox. If a patient has had the latter disease, we may safely conclude that the attack must be the former. Chicken-pox is likewise attended with almost no general disturbance of the system. Such could hardly be the fact in any case of varioloid, or small-pox. When, therefore, it is remembered that there are fewer pustules in varicella than in small-pox, that it generally runs through its course with much greater rapidity, and with scarcely any fever or other disturbance of the system, we will not have much difficulty in distinguishing between the two diseases. It is said, likewise, that there never occurs a case of chicken-pox without there being some degree of cough.

*Varieties.*—This disease occurs in two varieties. In the first, the vesicles are small, but slightly elevated, and contain a colorless fluid. It is to this form that the term "chicken-pox" is more especially applicable. The vesicles appear on the first day, and are at first small, pointed, transparent, and red; for two or three days they increase in size, and on the second or third day the fluid in them has a milky appearance, and they become more or less shriveled in appearance, and are surrounded by a red border. By the fifth or sixth day, the vesicles become changed into small brownish scales; from the ninth to the tenth day, fall off.

The second variety, which is called more appropriately *swine-pox*, comes on in a similar manner as the first. "The red points are quickly

replaced by large round vesicles, containing a transparent fluid, which becomes opaque on the second day of the eruption. The vesicles have then reached their greatest size; they are soft and flabby, their color is of a pearly white, and their circumference is larger than their base, which is surrounded by an inflammatory areola."

Usually about the second day the vesicles become faded, and exhibit signs of passing away; at the same time the fluid becomes thicker and of a more yellow color. If the patient is not bathed sufficiently often, a good deal of itching takes place, so that it often happens, especially in cases of children, that the vesicles are torn, by which the inflammation is increased, and yellow pus, of more or less consistency, is formed. In such cases there is more liability to marking than there would otherwise be, for which reason scratching should, if possible, be avoided. The healing will also proceed more rapidly if the vesicles can be left to themselves.

It has been believed on the part of some, that this disease is only a modified form of small-pox. But I do not see why there should be any doubt as to this point; for persons who have had small-pox, or who have been vaccinated, seem to be just as liable to chicken-pox as those are who have not thus obtained an immunity from the former disease. Neither disease seems to have any relation whatever to the other, so far as prevention is concerned. Consequently we must consider the two as being totally distinct from each other.

*Treatment.*—Dr. Marshall Hall laconically observes: "In general, *no treatment* is required in chicken-pox. An open state of the bowels; barley-water for diet and drink; a cool atmosphere; perfect quiet and repose, are the sole remedies."

Such a course will prove successful in most cases; incomparably more so than the old-fashioned one of keeping the patient hot, giving stimulants, etc., to keep the eruption from striking in, as was supposed.

If in any case the disease prove severe, the patient should be treated in the same methods as for small-pox, elsewhere laid down in this volume and to which the reader is referred.

#### MEASLES—RUBEOLA.

This affection occurs for the most part in childhood, but adults and even the oldest persons may have it. It is not a settled point as to whether the former or the latter have it the more severely. It occurs usually but once during life. It prevails most in the cold and wet seasons of the year, but may appear in the midst of summer, or at any other time. It is both a contagious and an infectious disease. It

no doubt also springs up spontaneously in some cases, and then communicates itself by contagion.

There are three varieties of this disease: 1. The *vulgaris*, or *common measles*, in which the rash is only slightly prominent, extending over the mouth and fauces, and in which there is hard, dry cough, with inflamed, watery eyes. 2. The *incocta*, or *imperfect measles*, in which the rash runs its course with little fever or catarrhal symptoms, and which does not afford any certain security against a subsequent attack. 3. The *nigra*, or *black measles*, in which the rash appears about the seventh day, assuming a black or livid hue interspersed with yellow, prolonged in its stay, and accompanied with extreme languor and quickness and weakness of pulse. Some have added also another division, *rubeola putrida*, or putrid measles.

*Period of Incubation.*—It is supposed that measles, like scarlatina, hatches from eight to twelve days in the system before coming out. The period may, however, be much longer.

This disease is to be regarded on the whole as a formidable one, not only because it sometimes proves fatal, but because it is apt to arouse other disorders in the system, and to leave the lungs in a bad state.

*Symptoms.*—These of course vary much in different cases. Usually there is in the beginning more or less of catarrhal symptoms; the patient sneezes often, and appears as if he had taken a cold. Sometimes the nose bleeds. There is apt to be a harsh, dry cough, with difficult and oppressed breathing; the face and eyes are flushed and sometimes swollen, and the countenance appears heavy; the eyes and nose “run,” and the cough is what is sometimes termed the “measles cough.” The throat is usually sore.

These symptoms last three or four days usually before the eruption makes its appearance; but it is believed they *may* last even twenty days before the disease appears on the surface. The eruption appears first upon the forehead and face, and then spreads over the other parts of the body. It lasts about *three* days before it begins to decline much, making *seven* days from the beginning of the fever.

*Results.*—In bad cases of measles there may occur bronchitis, pneumonia, and pleurisy; or there may be inflammation of the eyes, or a chronic inflammation of the bowels, in the form of a chronic diarrhea. Tuberculous disease of the mesenteric glands of the abdomen may also be developed, and, in rare instances, general dropsy. The mouth and throat may ulcerate, and earache and running at those parts is not unfrequent. The rash may likewise go in suddenly, when there is very apt to follow some internal inflammation—as of the lungs, the abdomen, or the head. In these cases it is commonly supposed that the

retrocession of the eruption is the cause of the internal mischief ; but this is by no means certain, and is, on the contrary, probably not at all the case ; it is more probable that the internal disease puts a stop to the external. As a general fact, no two considerable diseases can go on at the same time in the living body. The recurrence of another disease, in an *internal* part of the body, is sufficient to suspend or put a stop to an *external* disease.

In the ordinary modes of treatment a troublesome looseness of the bowels not unfrequently follows measles ; but I have known no such case in Water-Cure. True, diarrhea does sometimes happen ; but it seems to be of service rather than harm.

*Treatment.*—First, we are to keep down the general fever, as in all inflammatory diseases. In accomplishing this we do not send the eruption *in*, but aid nature in bringing it *out*. A single tepid-bath, a pack, or a cold-bath, if the patient is not very weak, will often bring the rash upon the surface as by magic, while all the other symptoms are relieved in a remarkable manner. We use, then, the wet-pack, and tepid or cold ablutions—each one or all of these, as may be convenient, or as the case may require. If the case gets to be a bad one—*typhoid*, as we say—which can hardly happen if every thing is well attended to from the first, we must treat it as we would any other case of typhus.

During the past nine years, in this city and elsewhere, I have known great numbers of cases of measles to be treated by water, and in no single instance have I known the disease to prove fatal under such treatment. This, then, I put down as a great triumph for Water-Cure.

#### SCARLET FEVER—SCARLATINA.

The word *scarlatina* is of Latin origin, signifying *scarlet*, or *red*, the eruption in the disease bearing that color in a remarkable degree.

Scarlet fever is, for the most part, a disease of childhood, although adults sometimes have it. Sir Gilbert Blane, however, says he never saw a person above forty affected by it.

*Period of Incubation.*—It is supposed that scarlet fever, like measles, *incubates* or *hatches* in the system from eight to twelve days before making its appearance. This interval between exposure and the appearance of the disease is supposed to be longer in adults than children. But some think the latent period of the disease amounts only to five or six days. It is difficult to ascertain the exact truth on this point. There can be no doubt, however, that the period of incubation varies considerably in different cases.

*Symptoms*—There is at the commencement fever, restlessness,

anxiety, depression of spirits, paleness, chilliness of the surface, and pain in the head; which are soon followed by heat, thirst, and general sickness, with nausea or vomiting. The peculiar scarlet flush or rash appears usually about the second day of the fever, on the face and neck, and in the throat, spreading progressively over the surface, and terminating about the seventh day from the beginning of the fever. Sometimes, however, it happens that the eruption does not make its appearance for four or five days after the commencement of the attack. The eruption is usually at its height on the fourth day. On the second it comes out, and on the third it spreads itself over the whole surface; on the fourth it arrives at its height of redness, and on the fifth declines. On the sixth day, usually, the eruption becomes very indistinct, and before the end of the seventh it is gone wholly from the surface. After this the cuticle peels off by degrees.

Scarlatina is distinguished from measles by the scarlet appearance of the eruption, and by the smoothness of the surface. In measles the whole skin is raised in patches, but in scarlatina it is not elevated at all. In the latter disease, also, there are none of the catarrhal symptoms, such as we find in measles. The rash also makes its appearance about two days later in measles than in scarlatina.

Scarlatina is distinguished in its early stages from small-pox by the fact that in the latter disease there is usually, as it is coming on, severe pain in the back and loins, and great tenderness of the epigastrium. These symptoms do not at all belong to scarlatina. If, therefore, when a person is taken suddenly ill, and an eruptive disease is suspected, and there is yet no pain of the back or loins, and no tenderness of the pit of the stomach, we may have measles, scarlet fever, or some other rash, but no small-pox. This is a distinction that is well worth remembering, both by the patient and the physician.

This is sometimes contagious and at other times spontaneous. It usually occurs but once in the same individual; yet, like all other eruptions, it may attack a person a second time; and while the disease is prevailing among the children of a family, the adults are sometimes observed to be affected with sore throat, which may be either slight or severe, but without eruption. It is believed by good judges that these have proved to be genuine cases, and capable of communicating the eruption.

Scarlatina, like all other severe and dangerous diseases, may vary so much in degree as in some cases to be so trifling a matter as to attract little or no attention from the parents; and, on the other hand, it may become—as, indeed, it often does—one of the most fearful of all maladies to which the human body is liable. I have known chil-

dren who were reared on a vegetable diet so healthy that they have lived and slept even with those who had the disease, and yet got so little of it as only to be made a little feverish. But generally, and as sad experience too often teaches, it is the very reverse of these favorable cases.

*Varieties.*—There may be reckoned two great varieties of scarlet fever. These are: 1. *Scarlatina simplex*, simple or benign scarlatina, in which the fever is moderate, terminating with the eruption, the prostration of the strength being slight, and the contagion less virulent. 2. *Scarlatina maligna*, malignant scarlatina, in which the fever is severe, the throat ulcerated, the rash later in its appearance and less extensive, often changing to a livid hue, and the disease highly contagious. Some writers have made three varieties of scarlatina; others but two. This is sufficient, I think, for all practical purposes, and all divisions are necessarily somewhat arbitrary.

*Complications.*—A variety of complications may occur in this disease, particularly in its severe form. Among these are the following:

1. Deafness, delirium, stupor, inflammation of the brain;
2. Inflammation of one or more of the parts composing the throat;
3. Constriction of the jaws;
4. Difficulty of deglutition;
5. Rattling, laborious breathing, inflammation of the chest;
6. A teasing, hawking, troublesome cough;
7. Enlargement and softening or ulceration of the various glands of the body, such as the parotid, submaxillary and mesenteric, the kidneys, etc.;
8. Diarrhea, inflammation and violent pains in the stomach and bowels;
9. Small blisters on the hands and feet;
10. Petechiæ, or small spots on the skin, resembling flea-bites, and which appear as a dangerous symptom in the course of severe fevers;
11. Vibicis, or large purple spots like the marks of a whip, which appear under the skin in certain malignant fevers, and which also indicate great danger;
12. Hemorrhages from the internal surfaces;
13. Sudden and unexpected dissolution.

Besides these, and some other complications that may occur in connection with scarlatina, there is apt to follow the disease an affection of the joints resembling rheumatism, and a general dropsy of inflammatory character. These can, however, I am confident, amount to but little, if the water treatment be judiciously followed throughout the whole course of the disease. Such, at least, must be the result in the majority of cases, and there is reason to believe that the complications, so called, of the disease are in a multitude of cases more the effect of the treatment employed than of the disease itself. If this opinion is correct, the "complications" of scarlatina often present a sad comment upon the fashionable medical doctrines and practice of the day.

*Treatment.*—It has been well remarked by an author of celebrity, that every extreme of medical treatment has had its advocate in scarlatina, and that the experience of the profession has not sustained the expectations formed of the effects of the remedies recommended. The most opposite methods have been recommended by authors of great celebrity. Tonics and stimulants were urged by Dr. Fothergill, copious blood-letting by Dr. Southwood Smith and others, and emetics by Dr. Cross. And yet, after centuries of experience and observation, in this, as in some other diseases, the medical faculty have not fixed upon any plan of treatment as being the true one in this disease.

It is now agreed, on all hands, that common cases of scarlet fever will do well without any other treatment than that which is included in the term *good nursing*. "If we take care to do the patient no harm, he will in general do very well," Dr. Elliotson observes.

There is far less disagreement among medical writers respecting the use of water than drugs in this disease. I will quote several authorities.

Dr. Elliotson observes; "The disease has been cut short by taking the patient out of bed, and pouring cold water upon him. The heat of the body is so great in this disease, that no danger is to be apprehended from the cold affusion. It is true, there are cases where the patient is more or less chilly; but if, in this affection, the general rules I laid down in the case of common fever be followed, there is no danger whatever, but the greatest advantage, in taking the patient out of bed (however hot he may be), and pouring cold water upon him. These rules are, that the temperature is steadily above 98° Fahr.; that there are no profuse general sweats; that there is no chilliness, and no inflammation of the chest or abdomen. I presume this would be done oftener than it is, were it not for its appearing a violent measure to take a person in fever out of bed, put him into a wash-tub, and souse him well with cold water. But at any rate, no friends will object to washing a patient with cold water. It is a great comfort to the individual, and as long as it is comfortable, it should be had recourse to. Sponging the hands, arms, face, and trunk with cold water is grateful to the patient, and is an excellent practice in the disease."

Dr. Burns, author of a work on "Midwifery," regarded affusion with cold water a remedy of utility in scarlatina. It is, however, but justice to him to remark, that he did not advocate the affusion in cases where internal inflammation existed, in connection with the disease in question. He says of the affusion: "It is of consequence to use it early, if it is to be done at all; and whenever the skin feels steadily hot, the shivering having gone off, and the skin feels very warm to the hand of another person, it is time to put him into an empty tub, and

pour over him a large ewer full of cold water. By this I have known the disease arrested at once, the eruption never becoming vivid, and the strength and appetite in a few hours returning. Even where it is not arrested, it is pleasant to observe the change which often is produced. The patient, from being dull, languid, and listless, feels brisk, and disposed to talk or laugh; the skin becomes for a time colder, and refreshing sleep is frequently procured. The repetition must depend on the degree of heat, and the effects of the application. If that have done no good, it is useless to try it again. One application is sometimes sufficient; but it may be necessary the first day to use it twice, and once the next day. It is seldom requisite afterward; for although the disease may continue, it is mild, and laxatives complete the cure. If the fever be mild, and the heat not pungent and great, we do not employ the affusion. We keep the patient cool, or have the surface cooled frequently by a sponge dipped in cold water; and, indeed, this seems now, in most instances, to have superseded the use of the affusion."

Dr. Dewees says of the treatment of scarlet fever: "In the early inflammatory condition of scarlatina, when there is considerable arterial action, and vast augmentation of heat on the surface, cold ablution or sponging gives great relief to the symptoms, and is a most comfortable process. Some, however, are afraid of these cold applications, because the throat is sore; but this forms no exception, for it is not accompanied with cough, or other pneumonic symptoms, like measles; and the sponging or cold affusion has checked the sore throat most evidently."

Dr. Currie remarks on the same subject: "The plan that I follow, if called in at this early period (namely, when the heat is great), is to strip the patient, and dash four or five gallons of the coldest water to be procured over his naked body. This produces its usual cooling effects, but these are less permanent than in typhus. In one or two hours afterward the heat is often found, on examination, as great as before. The affusion is, therefore, repeated again and again, as the obstinacy of the heat may indicate. It is necessary to use it ten or twelve times in the twenty-four hours. At the end of this time, but commonly earlier, the force of the fever is broken, and a few tepid affusions, at longer intervals, are sufficient to subdue it entirely. During this time cold water and lemonade should be used as drinks, and the bowels opened, if necessary, with calomel. In a few cases, I have thought it advisable to assist the affusion by the diaphoretic (sweating) power of a solution of tartarized antimony. If left to myself, I use no other means."



Dr. Good, in speaking of various means of diminishing the "burning heat" of the skin in scarlatina, remarks: "But our chief dependence for this purpose must be upon Dr. Currie's bold and happy plan of employing cold water freely. Sponging will rarely be found sufficient, or rarely will be found of equal advantage with affusion; the fluid may, indeed, in this case, be dashed against the patient till the heat is subdued, and the process be repeated as fast as it returns. The refreshment is often instantaneous, and operates like a charm, and seems to show not merely a refrigerant, but an exhilarating power; the skin immediately becoming softer and moister, as well as cooler."

This, then, is the great principle of treatment in scarlatina, as indeed in all inflammatory diseases—a principle to which I have so often alluded—to *keep down the general fever*. A local part can not suffer much without the constitution sympathizing with it, in form of general heat and uneasiness. We treat also for local symptoms, as well as the general; as, for example, when the throat is sore, painful, and swollen, we keep wet compresses, more or less cooling, according to the heat in the case, constantly applied. And so also of the wet girdle; it is better to use it continuously, because this operates to keep down general fever, to relieve the throat by sympathy, and to support the strength. Still, the great dependence, be it remembered, is the *general means*.

As to the fears of Drs. Elliotson, Burns, and others, in regard to the use of cold appliances when inflammation of an internal organ is feared, they are altogether groundless. I repeat again: *we must treat all inflammatory diseases essentially according to the general fever*. We need have no fear, then, of the method, since the following out of this principle is the most efficient one of reducing the inflammation of an internal organ.

I must here earnestly and confidently recommend to all friends of Water-Cure this best of all remedies for the formidable disease of which we have been speaking. Use cold water fearlessly in the way of ablutions, pourings, wet sheets, compresses, clysters, drinks, etc., and fear not. If you have courage, such as a believer in water should have, trust your child to your own judgment and the knowledge that you may obtain, rather than to any doctor who is so stupid as at this late day not to understand the virtues of cold water in this disease.

The following letter of Dr. Hiram Corson, of Conshohocton, Montgomery County, Pennsylvania, is published by Dr. J. Forsyth Meigs, of Philadelphia, in "A Practical Treatise on the Diseases of Children," under date 1848. The facts given by Dr. Corson are presented in a

clear and lucid manner, and illustrate well the remarkable power of water in this formidable disease. He speaks as follows :

"Scarlet fever is a disease that has prevailed very much in our region during the last seventeen years, and has caused me much thought and anxiety. It will give me much pleasure to make you acquainted with the *results* of a plan of treatment, which I owe mainly to Dr. Samuel Jackson, formerly of Northumberland, now of your city, who first put me in the way of treating the disease successfully. In 1832, I treated the disease, which, however, was not malignant, very successfully, with iced drinks, moderate purges, and slight irritation externally upon the throat, and thought the practice peculiar to myself, but afterward saw, in the May and August numbers of the 'American Journal of Medical Science,' the communications of Dr. Jackson. Encouraged by these, I prepared to try the cold externally ; when a most unfortunate trial by a neighboring physician, so alarmed the people about the application of cold, that I could not prevail upon them to suffer the trial. From 1838 until within the last two years, we have annually had the scarlet fever for some months, and my treatment, with the exception of iced drinks sometimes, and cold to the head occasionally, was like that in general use, until August, 1844. At that time I was called to a child eight months old, that had been sick two days. There was great swelling of the glands both sides of the neck, hot skin, frequent pulse, but no eruption ; slight discharge from the nose ; the glands not easily seen upon the inside, but the drinker came back through the nose sometimes, and it could not take more than one draw at the breast without dropping the nipple, because of the obstruction of the nostrils impeding respiration when the mouth was closed. I stated candidly to the mother that I had never saved a child in that condition, and of that age, by the old treatment, and recommended *ice internally and externally*, cold water to the head, and no medicine. I could urge nothing on the score of experience, but she agreed. Lumps of ice were folded in linen cloths, and held night and day upon the two sides of the throat ; while a small thin piece, inclosed in white gauze, was held in the mouth. In less than three hours improvement was manifest in the ability to swallow. The swelling of the glands, the heat, and the frequency of the pulse all regularly diminished ; and in two days the child could nurse well, and was out of danger.

"The next severe case occurred in about two weeks. It was one of the most intense scarlet eruption, with tumefaction and ulceration of the tonsils, vomiting, coryza (running at the eyes), great frequency of the pulse, excessive restlessness, and swelling of the external glands.

The heat was intense ; there was heaviness amounting to stupor. My treatment was a kind of half-and-half ; emetics, purgatives, cold externally and internally. But half satisfied with myself, my course was vacillating and inefficient, and I at length called in a friend, who turned the scale in favor of irritating gargles, and our patient died. I was mortified and provoked, and determined to act out my convictions at the next opportunity. A few days after I was called to two boys, of five and seven years of age, who had been 'listered upon the throat, legs, and arms, and had had hot drinks, calomel purges, etc., and who were discharging copiously from the nose, and were almost dead. Their countenances were sunken, the throats gangrenous, pulse above 150 ; their appearance was that of persons in typhus fever. I expressed my fears of the blisters, predicting that they would all be gangrenous in twenty-four hours, and that they would be likely to destroy the patients. I had cloths dipped in iced water wrapped round the neck, ice was put in the mouth, and cold water upon the heads, which were much affected. The throats were filled with ropy mucus, which was expelled through the mouth and nose during the coughing which attended efforts to vomit. The palate was literally destroyed by gangrene. A few hours produced no amendment. The blisters mortified  
vely, and though both children recovered from the disease, one died two weeks afterward from the sloughing of the throat and neck from the blisters.

"I now treated all that occurred with cold externally and internally, moving the bowels with cream of tartar and jalap. The cases were seen early, and easily subdued ; and it seemed to me as though the remedy was very efficient, or that my patients had a mild disease. That the latter was not the case, however, I thought probable from the fact, that in my region many cases differently treated died ; while in Norristown, only four miles distant, children from one to twelve years or more were swept off, after an illness of two or three days, the deaths being evidently produced by disease of the brain.

"On the 16th of July, 1845, I was called to see a little girl, four years and nine months old. She had been sick a day or two. The case began with vomiting. The eruption had been out from morning till 6 P.M. ; sickness the most intense all over that I had ever seen ; pulse as rapid as it could be, to be counted. The mother had been alarmed during the last few hours, in consequence of delirium and jerking, which she feared was the prelude to convulsions. There was tumefaction (hardening) of the sub-maxillary ganglions ; tongue furred with projecting red points, breath hot and offensive. When she found some one holding her wrist, she started from her dozing state, and being

somewhat afraid of the 'doctor,' went off immediately into one of the most terrific convulsions that I ever saw. It lasted, in spite of ice to the head, or rather iced water *constantly* poured upon it, almost half an hour. I stayed with her, had her undressed, and placed two neices of mine (her mother being one) by her side. A large tub of water, with cakes of ice, at least a peck, floating in it, was brought into the room, and during the *whole* night these two persons bathed her from head to foot with the water from the tub, applying it by means of large sponges. It was to me a most painful case (independent of the convulsions), but in order to be certain that I had a case fit for the trial of the ice, I had my brother (a physician practicing at Norristown, where the disease was very fatal) brought at 10 P.M. to see the case, and say whether it was the same as those that had for a few weeks been carrying off some of the finest children of Norristown, and carrying terror into every family. He assured me that it was one of the most violent character, and that she would in all probability not live till morning. She was at this time free from convulsions, but in a muttering delirium. As I had perfect control in the case, I assured him that she should live, if I could quench the fire that was burning out her vitals, by the use of ice. Not a moment did the attendants whom I had placed by her intermit their labors. Before midnight reason had returned, and her mother said she was more herself than she had been during the whole day. I had gone away, but returned at sunrise, and found her cooled off perfectly. There was scarcely the least appearance of eruption, the skin was cool, the head cool, the intellect clear, and the pulse moderate in frequency and force. She had been unable to drink for many hours, and her tongue, which had been very much cut during the convulsion, was so swelled and sore, that I could obtain no view of the throat. I now directed the mother to intermit the sponging, doing it only once in every two hours, until I returned. My return was delayed until 4 P.M., when I found that the heat of the skin, frequency of pulse, eruption and delirium, had all returned. She was moving her hands as if feeling for something, slowly protruding and withdrawing the tongue, and muttering. She did not notice her mother's questions, and was apparently unconscious of all that was going on. We threw on the water, ice cold, in the utmost profusion, and lapped cloths, dipped in the water, around the neck, changing them every minute or two. We poured it upon the head constantly, holding a large basin under to catch it. In one hour reason returned. We continued it till the eruption almost disappeared, until the child shrank from it, and until she was ready to shrink from cold. I now gave her cream of tartar and jalap, directed the water

to be used just as was needed to keep down the heat, and had no further trouble with her. I forgot to say, that so soon as she could swallow, cold drinks and ice were kept in the mouth. She took no more medicine. The wounds in the tongue healed up kindly.

"There were two younger children in the family, both of whom were attacked a few days after, while apparently in good health, with vomiting, and the same symptoms as in the first case. The throats were red, swelled, etc. Cold cloths were wrapped around the neck; they were purged with jalap and cream of tartar; as the heat of the skin and eruption appeared, iced water was profusely applied to the whole body, so as to keep down the heat, and allow but a very moderate eruption to show itself. They were well in a few days, without a bad symptom. It was now mid-winter. The cases followed each other rapidly. I treated them all in the same way, and *all* with like happy results. The disease had a wide range, extending from the Schuylkill across the high-lands between Norristown and Doylestown, and was in that range very destructive in many families. There was much alarm, and I was called two miles back of Norristown to a girl about eleven years old. The eruption had been out about twenty-four hours. The throat was swelled, and covered with white patches (generally called ulcers), tongue dry, hot, and red, skin hot as skin could be, and what to me characterizes the most malignant cases, the eruption, instead of being a bright scarlet, was of a purple-red, like the congestion sometimes seen in the faces of old drunkards. There was great oppression, not *difficulty* of breathing, but a state like that which exists when a person is deathly sick, but can not vomit, with extreme restlessness and jactitation. The disease had been so fatal, that the mother thought the case almost beyond remedy; but when I told her that the cold had proved successful, she was eager to try it. It was 8 o'clock A.M. The girl was stripped, and the iced water applied all over. Ice was lapped around the neck, and positive directions given to continue the application without intermission until I returned. It was about four miles from me, and I did not return for seven hours. The moment my eyes rested upon her, I knew that we had done *too much*. She was as white as the sheet upon which she lay. The neighbors had been in and desired the mother to desist, that 'she would kill her;' but she had been true to her trust. The child was apparently bloodless, covered with 'goose skin,' and shivering with cold. Her pulse was *small*, and much less frequent, but not weak or fluttering, and she was sensible. (I forgot to say, that in the morning she was quite flighty.) I told the mother we had used rather more cold than was necessary, but that if we left it off now, she would probably do

well. I omitted it for two hours, and gave nothing. At the expiration of that time, the heat, and with it the eruption, showed themselves, so as to cause me to direct the sponging to be used just so as to keep them in check. The ice was kept constantly on the neck, and water poured frequently over the neck. I had no more trouble with her, although the skin desquamated (peeled off) from head to foot.

"Six other children in the same family took the disease. Five of them had the ice and iced water used upon them, and all did well. I gave none of them any medicine, except a little cream of tartar and jalap, to move the bowels moderately. I gave this combination because it is pleasant to children, and easily swallowed. The sixth case was a very mild one, so that the mother merely gave it a little castor-oil, and it did well, and seemed perfectly recovered in a few days. Indeed, the attack was so mild, that it would not have been detected as scarlet fever, if it had occurred at any other time. It was attacked with dropsy and an affection of the lungs about two weeks after, lingered several weeks, and finally died of pneumonie (lung) disease.

"I suppose I have attended more than a hundred cases of scarlet fever, of every grade, since I began the cold treatment. In no instance where I had it fairly applied did it fail. Indeed, I have lost but two patients since.

"In every variety of sore throat and quinsy, in summer and in winter, my treatment is ice around the neck; or when the nurse is faithful, iced cloths, renewed as soon as they approach the heat of the neck.

"In no single instance have I seen dropsy follow scarlet fever that had been treated by cold affusion. I have never seen it occur except after the mildest cases of the disease, those that had probably only needed a mild laxative."

#### NETTLE RASH—URTICARIA.

This is not at all a dangerous affection as a general thing, but one that causes a good deal of uneasiness and alarm at times. It is not contagious, but may occur at any time. It is most apt to come on during the period of teething, especially if the weather is hot. It may happen very soon after birth.

*Character.*—Urticaria, or, in plain English, nettle rash, is so called because the appearance of the eruption is precisely like that seen upon a person stung with nettles. There are patches of eruption and what are called wheals, which latter term signifies a somewhat hardened elevation of the skin, 'round, oval, or longitudinal elevation of the

skin," as it has been termed. The efflorescence is of a vivid or intense red, and sometimes of a damask hue, almost like that of the "claret marks," which we see upon some persons. There is extreme itching, so much so that the patient is in great distress, and must be scratching continually until relief is obtained.

*Treatment.*—Nettle rash is to be treated actively, according to the symptoms. The tepid and warm baths are valuable, so also the wet-pack.

#### ERYSIPELAS—ST. ANTHONY'S FIRE.

Erysipelas is usually an acute disease, which lasts on an average in ordinary treatment about two weeks. Often before it comes out there is febrile excitement of the system, with nausea, vomiting, headache, drowsiness, chills, etc. In other cases the local symptoms are the first to present themselves. The inflammation is superficial, but in some cases the swelling becomes enormous; so much so, that if it is in the face, the friends are not able to distinguish the individual. The eyes also become closed. The heat in this disease is very great, and the pain often severe. The redness disappears when the part is pressed upon by the finger, but soon returns when the pressure is taken off. Small vesicles often appear, which dry up and peel off in the form of light scales. In many cases erysipelas is but a mild disease; in others a most dangerous one, that is very liable, when improperly treated, to end in gangrene and death. It is liable, also, when treated by drugs, to change suddenly to some vital part. It may also spread down the air passages, as likewise down the alimentary canal. It is always more dangerous when it is internal than upon the surface.

*Causes.*—A man with pure blood could not get this disease. Those who eat swine-food and other gross articles, and inebriates especially, are liable to this disease. Cold and moisture are enumerated among the causes of erysipelas, as also wounds and injuries. In some seasons, and at particular times, this disease becomes so common in hospitals, that the surgeons scarcely dare to perform the most trifling surgical operation. Bleeding, and even leech bites, are often, under such circumstances, followed by dangerous erysipelatous inflammation.

*Treatment.*—I do not see how a patient can be lost in this disease, if water treatment is practiced fully and faithfully from the first. True, a poor drunkard with his whole system already, as it were, rotten, *might* slip through our fingers with erysipelas; but I think such an event very improbable, provided the proper means are brought to bear. He might die, to be sure, of stomach, heart, liver, or brain disease; but the *erysipelas* could doubtless be quelled.

The great thing is, *to keep down the general fever.* Do this *from first to last, both night and day*, and all goes on well. The local applications (wet cloths), *repeated often, and suited to the patient's comfort*, are also useful. Be especially careful to keep the head cool; pour water upon it as much and as often as necessary, and use wet towels; *keep the feet warm.* Water drinking, clysters, and spare diet when the appetite comes, are also to be thought of. Bathe the patient as often during the night as may be necessary to give him sleep. No disease requires a more prompt treatment than bad erysipelas. So that the feet are kept warm, it is quite impossible to do too much. Allow of no remedy other than water.\*

#### ROSEOLA—ROSE RASH.

This affection occurs chiefly on the cheek, neck, and arms. It is frequently met with as a symptom in other maladies: in dentition, upon the cheeks; in vaccination, around the vesicle; in dyspepsia and disorders of the blood, upon different parts of the body. Great fatigue, heat, and cold may cause it, especially in irritable constitutions. Drinking very cold water when the body is hot and fatigued, is often observed to produce it. The rash may be troublesome, but otherwise is of little importance. A tonic treatment is proper.

#### PAPULOUS SKIN.

That form of skin disorder known as *papulous skin*, consists in "small acuminated elevations of the cuticle, not containing a fluid, nor tending to suppuration, commonly terminating in scurf." There are reckoned four varieties of the disease: *gum rash*, *lichenous rash*, *pruriginous rash*, and *millet rash*.

*Gum rash* belongs to early infancy, and consists in "red pimples, chiefly about the face, neck, and arms, surrounded by a reddish halo,

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\* I have, in several instances in this city, treated severe cases of this disease. A number of years since I published in the Water-Cure Manual the case of Mr. Wetmore, whom I cured twice of a very violent attack. It was in the autumn each time when he was attacked. The means used were wet-packs, affusions, local cooling applications. My general advice to Mr. W. was to bathe as often as the fever came up, *if it were twenty times in a day*, and to bathe as often during the night as would be necessary to procure sound sleep. One night, when the disease was at its worst, he took, between ten o'clock at night and six o'clock in the morning, four long-continued Croton shower baths, the same having little fall. Each time after thus thoroughly cooling himself he could sleep well for an hour or two, after which the fever would return. On the whole, he obtained a very good night's rest. His recovery in both cases was rapid, and in neither case was he kept from his business more than three or four days. In both instances the attack was a very severe one, as all know who saw him. There is no disease in which water acts more favorably, none in which the value of art can be more strikingly exemplified, than in erysipelas.



or interrupted by irregular plots of cutaneous blush." Usually it is not of great importance, but the child's general health should be attended to in the best manner.

In the *lichenous rash* the pimples are red, the eruption diffuse, and attended often with a sense of pricking or tingling. This species of skin disease varies greatly in character and appearance in different cases. It is caused by impure blood, heat, cold, fatigue, etc., like some other disorders of the cutaneous surface. The treatment should be of a purifying and tonic character.

In *pruriginous rash*, or *prurigo*, the eruption is diffuse, the pimples nearly of the color of the cuticle, and accompanied with intolerable itching; they naturally terminate in resolution, and with small, black circular spots when they have been broken by the nails. It is more common at both extremes of life, and happens much the oftener among the poor and filthy, and oftener among men. It may happen upon any part of the body, or over the entire frame. When chronic, *prurigo* is often a troublesome disease to cure. Too great attention can not be paid to personal cleanliness in every respect, both as to body and clothing; and the treatment throughout should be of the most tonic and invigorating kind.

*Millet rash* consists of minute, hard, milk-white, tubercular pimples, resembling millet seeds; they are confined to the face. They are usually of little importance, and readily give way to ablutions and proper diet.

#### ACNE.

This is a *tubercular*, or, as some say, a *pustular* eruption, seen mostly upon the face of young persons of both sexes. The eruption sometimes becomes black at its apex, and which, when squeezed, emits what is called a maggot, but which is, in fact, only a portion of thickened, vitiated, sebaceous secretion, without life. Spare vegetarian diet, with suitable bathing and exercise, are the curative means. Matrimony often removes the disease.

#### SCALE SKIN.

The diseases belonging to this head are *dandruff*, *leprosy*, *dry scall*, *psoriasis*, or *scaly tetter*, and *fish skin*.

*Dandruff* consists of patches of fine, branny scales, that readily exfoliate, and without soreness of any kind. It is common in infancy and advanced years. It happens mostly upon the head, but may occur upon any part. Cleanliness, frequent ablution, and attention to the general health are the appropriate curative means.

*Leprosy*, or *lepra*, is a contagious disease, and consists of patches of smooth laminated scales of different sizes, with a central depression, and of circular form. There are several varieties of the disease, such as *dull white*, *bright white*, and *black*. It is to be treated on general principles.

*Psoriasis*, *dry scall*, or *tetter*, consists in patches of rough, amorphous scales of continuous or indeterminate outlines, with the skin often inclined to chap. The disease is perhaps the most common of all the chronic affections of the skin in temperate latitudes, and is sometimes exceedingly painful and difficult of cure. Improper diet, filth, indolence, want of proper exercise, and licentiousness, are its more frequent causes. "The first principles of a curative intention," observes Dr. Good, "must consist in washing and softening the skin by warm bathing, regularly persevered in, and in improving the diet and exciting to a life of more activity." The wet-pack is an invaluable remedy, and can hardly, under proper rules, be used too much in such cases. The treatment throughout should be very much the same as for scurvy. "Bleeding, and the repetition of purgatives," observes Dr. Good, "are of no avail though a common practice with many." "Strong mercurial preparations," according to Dr. Williams, "are of no advantage, but eventually aggravate the complaint." Arsenic sometimes removes it by inducing a worse state of things inwardly.

*Fish skin*, or *ichthyasis*, consists of a thick, indurated, calcareous incrustation upon more or less of the skin, sometimes covering the whole body like a shell. In some cases it attains an enormous thickness, becoming at the same time of an almost horny hardness. Medicines have been found of no avail in the disease. The only method of cure is a complete purification of the system, and a restoration of the general health.

#### HUMID SCALL.

In what is termed *humid scall* the eruption consists of small pustules, distinct or confluent, that harden into crustulous plates. Its varieties are *running scall*, *scabby scall*, *papulous scall*, and *itch*.

*Running scall*—*impetigo*, consists of "pustulous clustering, yellow itching, terminating in a yellow, scaly crust, intersected with cracks." It arises from the ordinary causes of skin disease, bad diet, filth, debility, etc., and is to be treated accordingly.

*Scabby scall*—*porrigo*, is composed of straw-colored pustules, which concrete into yellow scales or scabs. It is common upon the heads of children, in which case it is called *scalp head*. It is for the most

part a chronic affection, and needs a tonic and purifying course of treatment.

In *papulous scall*—*ecthyma*, the pustules are "large, distinct, distant, sparingly scattered, seated on a hard, elevated base, terminating in thick, hard, greenish or dark-colored scabs." The treatment must be tonic and purifying. "Nutritive food alone, with pure air and regular exercise," says Dr. Good, "is often sufficient for a cure."

*Itch* is a contagious disease that is too well known to need a lengthy description. It makes its appearance mostly about the wrists and ankles, between the fingers and toes, sometimes upon the front of the body, in the armpits, but most of all about the roots of the thumbs. It is seldom if ever seen upon the face. It is said to be seen far more frequently at the roots of the thumbs than anywhere else; then at the wrist; next between the fingers; at the ankles and between the roots of the toes; and next on the front of the chest.

This affection could not possibly have a more appropriate name. The itching is both intense and incessant, and the relief from scratching the parts affected by it is so great, that the patient can not restrain himself from this exercise. James I., king of England, said that no subject ought to have it, on account of the great pleasure to be derived from scratching the affected parts.

There are reckoned five varieties of this disease: 1. *Papularis*, or *rank itch*, in which there is an eruption of miliary, aggregate pimples; with a papulæ, slightly-inflamed base, and vesicular apex; pustules scantily interspersed tips, when abraded by scratching, covered with a minute, globular, brown scab. 2. *Vesicularis*, or *watery itch*, in which the eruption is of larger and more perfect vesicles, filled with a transparent fluid, with an uninflamed base, intermixed with pustules; at times coalescing and forming scabby blotches. 3. *Purulenta*, or *pocky itch*, in which the eruption consists of distinct, prominent, yellow pustules, with a slightly inflamed base; occasionally coalescing and forming irregular blotches, with a hard, dry, tenacious scab. 4. *Complicata*, or *complicated itch*, in which the eruption is complicated of pustular, vesicular, and papulæ pimples, co-existing; spreading widely over the body; occasionally invading the face; sometimes confluent and blotchy. 5. *Exotica*, or *mangy itch*, in which the eruption consists chiefly of rank, numerous pustules, with a hard inflamed base, rendering the skin rough and brownish, itching extreme, abrasion unlimited, from excessive scratching. Produced by handling mangy animals.

*Causes*.—It is important to observe that, as a primary disease, itch is in every instance, the result of personal uncleanness and an accu-

mulation of sordes, or, in other words, of foul matter and excretions on the skin. Such is the testimony of all accurate observers on this subject. True, cleanly children may and often do contract the itch; but, as Dr. Good well observes, "it always appears most readily when close air, meager diet, and little exercise are companions of personal filth; for here the skin is more irritable and more easily acted upon by any morbid cause."

It is common for itch to appear after fever. Dr. Elliotson indeed remarks that it is *very* common in such cases. Now, if this be a fact, of which we have no reason to doubt, are we not to account for the circumstance as occurring in consequence of the uncleanly manner in which fever patients have generally been treated in the old modes. To keep a fever patient any thing like clean, it is necessary to wash his whole surface at least two or three times thoroughly every day, and to change both his body and bed-clothing as often. But these things are never done in the old practice, as every one knows.

In the latter times of transcendental speculation, it has been supposed that this disease has an animalcular origin; or that it is a small insect that burrows in the flesh, and causes the mischief upon the skin. "The immediate cause of the itch," says the Library of Medicine, "is now ascertained to be the presence of an insect, the '*acarus scabei*;' at least, the existence of this insect is now placed beyond doubt by the recent researches of M. Rennice, which confirm the former assertions of Avenzoar, Hafenseffer, Bonomo, Castoni, Ingrassia, Joubert, and Monfet. The *acarus* is to be found, not in the vesicle (as Gale asserted, and thus misled observers), but at the end of a small reddish furrow, sometimes straight, sometimes crooked, about two lines in length, which begins at the vesicle and finishes with the insect. A minute subcuticular spot is often perceptible near a distinct vesicle; on raising the cuticle with a pin, a small white corpuscle, which moves when lifted with the point of the pin, becomes visible; this is the *acarus*. The serosity contained in the vesicles does not appear sufficient to produce the itch, while the *acarus* immediately produces the vesicles; but it yet remains to be explained why the itch is so easily caught, by only touching the hand of a person infected with it; for it is difficult to extract the insect furrowed under the cuticle."

There is no doubt but that an insect is found sometimes in connection with itch. Whenever any part or organ of the body has become weakened in its action, it is apt to become the habitation of worms or insects, and a place in which they may even generate their kind. This is true in regard to worms in the bowels, for vermin in this part of the body is always indicative of weakness of the digestive organs.

So, too, we see maggots and worms in ulcers that are not properly attended to, especially in hot climates. It is no doubt true, moreover, that a sort of insect is sometimes found in connection with itch, as also in some other cutaneous diseases. But these, whenever they appear, are not a *cause*, but a consequence of the disease. How, too, can an insect that is difficult to extract from the skin, be the cause of a disease which is so easily communicated from one to another as the itch? And why does not the insect, if an insect be the cause of itch, attack all parts of the surface, or one part as soon as another?

*Treatment.*—"There are few complaints," says one distinguished author, "that have been treated with so many remedies, and none with so many pretended specifics. Sulphur, zinc, acids of all kinds, bayberries, white hellebore, arsenic, alum, muriate, and other preparations of quicksilver, alkali, tobacco, and tar, have all been used externally in the form of lotions or ointments, and sulphur and sulphuric acid have been given internally, and strongly recommended for their success."

It is admitted, however, that after all there is no certain specific known in drug treatment for the itch. Sulphur, externally, seems to be the most reliable of these so-called remedies; internally it does no good. But there have been cases which have resisted all methods of the drug kind, but which have afterward been cured by the force of nature alone.

It is the notion with those who believe in the insect theory respecting itch, that sulphur, or whatever substance is used, cures by its property of destroying the animalculæ. According to the experiments of M. Albin Gras, the insect lives sixteen hours in the vapor of burnt sulphur; three hours in water; two hours in olive oil; one hour in the acetate of lead; one hour in pulverized brimstone; three quarters of an hour in lime water; twenty minutes in vinegar and spirits of wine; twelve minutes in a solution of sulphuret of potash; and only from four to six minutes in a solution of the hydriodate of potash. Hence if poisoning the insect is the only object to be arrived at in the treatment of this affliction, the latter substance, the iodide of potassium (improperly called hydriodate of potash), is the best of those mentioned. No doubt a solution of tobacco would quickly put an end to these vermin. But it is to be remarked that the insect is not the cause of the disease, but only an attendant in some cases, but not all. Hence we are to look farther than to the mere killing of the vermin in the treatment of this loathsome complaint. In the use of poisons, too, it should be remembered there is always danger of doing serious harm to the constitution; so that, while destroying the disease, we

may bring on a much worse state of things than that for which the treatment is administered. This fact has often been exemplified in practice.

"The itch," says Dr. Good, "is not difficult to cure, and seems only to require an application that will excite a new and more healthy action in the cutaneous vessels." Now, if the opinion of this learned author is correct, and there can be no doubt of it, we see how admirably well calculated the water processes are to effect the object. What other treatment can possibly exert so good an influence on the skin as this? What treatment in the wide world is there that will "excite a new and more healthy action in the cutaneous vessels" like the Water-Cure.

And then there is the other circumstance so intimately connected with this disorder—the filth and uncleanness of those in general who have it. "A word to the wise" is sufficient on this point.

Who does not know that it is the dirty children, for the most part, that get the itch? "But," says an objector, "we all of us had it when we were children, and do you say we were not kept clean?" The answer is, that wearing a woollen shirt one, two, or three weeks, night and day, without changing or having it washed, *and never for the whole winter washing the body at all*, does not accord with our ideas of cleanliness. The only wonder in regard to such habits is, that children do not get the itch oftener than they do.

What in the whole range of medical substances can at all compare with water as a remedy for the intolerable itching in this disease?

If we were to go upon the plan of treating the disease as being one of insect origin only, water would be a good remedy, as every one knows. It is notorious that vermin and water do not at all agree with each other; and, as we have seen, the insect that is sometimes found in connection with itch, lives only three hours in water, while in the vapor of burnt sulphur, which has been so much recommended, it lives SIXTEEN HOURS! Look at it in whatever light we may, water is an admirable remedy for this, as well as all other diseases.

#### BLAINS.

These consist of orbicular elevations of the cuticle, containing a watery fluid. The varieties are *water blebs*, *tetter* or *herpes*, *sordid blain*, and *heat eruption*.

*Water blebs* contain "a reddish, transparent fluid, mostly distinct, breaking and healing without scale or crust." Debility and irritability seem to be necessary to their production. Water blebs are not uncommon in teething, during bowel complaints, and soon after vaccina-

tion. Great anxiety, fatigue, watching, low diet and spirits, have been enumerated among the causes of the disorder in adults.

*Tetter—herpes*—consists of a small, distinct, vesicular eruption; with a red margin, pellucid in the beginning, afterward opaque, accompanied with itching. The disease commonly known as *shingles* comes under this head, and *ringworm* is of the same variety, which, in consequence of its frequency, demands more than a passing notice. It is a common form of crisis. In such cases it comes out principally upon those parts over which wet bandages or compresses are worn, and oftenest upon the abdomen. "It usually appears," says Dr. Good, "as a symptom or sequel of some disease of the abdominal viscera, and sometimes proves critical to them."

In order to prevent the local itching and irritation that occurs in this complaint, wet compresses of soft linen, of such degree of temperature and moisture as proves most agreeable to the patient's feelings of comfort, should be kept constantly applied to the parts affected. There is no known application or remedy that is so salutary and effectual as this. The constitutional treatment is obvious.

*Salt rheum* is a popular name in the United States for eruptions of the herpetic kind. A number of affections, probably, come under this head, but the causes and the treatment in all of them are very much the same.

*Sordid blain* consists in "an eruption of broad, flattish, distinct vesicles; base slightly inflamed, fluid sanious, scabs thin and superficial, easily rubbed off, and reproduced." It is connected with a debilitated state of the system. The method of cure is obvious.

In *heat eruption* there are minute accumulated vesicles; distinct, but not closely crowded together, pellucid or milky, with troublesome itching, terminating in scales or scabs. The tepid or warm-bath is more appropriate than the cold in these cases. Medicines, as we are informed on old-school authority, are of no avail.

### SCURVY.

Of *scurvy* there are three varieties—*petechial scurvy*, *land scurvy*, and *sea scurvy*. In the first variety there are small eruptions, having the appearance of flea-bites, occurring chiefly upon the breast, arms, and legs, but not attended with itching as a general thing. This species of the disease is apt to follow fevers in which the debility has become extreme. It lasts not unfrequently five or six weeks in the ordinary modes of treatment.

In the second species, or *land scurvy*, the spots are more extended, and often occur in stripes or patches over the thighs, arms, and trunk

there may also be hemorrhage from the mouth, nostrils, or viscera, and there is always great debility and depression of spirits.

“The precursive symptoms are lassitude, faintness, and pain in the limbs, so that business, or even company, is found fatiguing. After this, there are often shiverings, nausea, and vomiting. The purple eruption, for the most part, appears first on the legs, and afterward, at irregular periods, on the thighs, arms, and trunk of the body; the hands and face generally remaining free. The spots, however, are frequent on the interior of the mouth, and particularly on the tonsils, gums, and lips, where they are sometimes raised or papulated. It is here the first hemorrhage commonly issues, though, as the disease advances, blood flows also from the nostrils, lungs, stomach, intestines, and uterus; all which organs, together with the heart, are sometimes found studded with spots on their surface, on examination after death. The hemorrhage is often profuse, and can not easily be restrained, and is accompanied with anasarca swellings. It sometimes precedes the purple spots, but more commonly takes place a few days afterward. It is this rapid erosion or ulceration of the blood-vessels, and consequent discharge of blood, often accompanied with diarrhea, or dysentery, where the intestines associate in the complaint, by which land scurvy is chiefly distinguished from sea scurvy, and acquires the distinctive name of *hemorrhage*; since, though these symptoms may also occur in the latter they do so rarely, except in the last stage of the complaint.”

The worst symptom of this species of scurvy is the tending to hemorrhage. This sometimes becomes very profuse, and is restrained only with the utmost difficulty, and in some cases it has been known to prove fatal. But in other cases the hemorrhage has had the effect of carrying the disease away. Hence, some have recommended bleeding as a remedy for the disease.

In sea scurvy the spots are of different hues, intermixed with livid, principally at the roots of the hair; the teeth are loose, the gums spongy and bleeding, the breath highly offensive, and the debility and depression of spirits extreme.

Dr. Parr has given a vivid picture of the symptoms and progress of this form of the disease. Its first appearance is evinced by a pale, bloated complexion, lassitude, and a disinclination to motion, with diminished energy in the muscular fibers; to which may be added some degree of stiffness or induration, and an intumescence of the lower limbs. If the gums, even in this early stage, be examined, they will be found spongy and apt to bleed on being touched, while the teeth are loosened in their sockets. The skin is sometimes rough, but more gen-



erally smooth and shining, covered with bluish or livid spots, which do not rise above it, and these spots often coalesce in large blotches, particularly on the legs and thighs. About the same period, old ulcers often break out again, and the slightest mercurial preparation quickly produces salivation. The ulcers discharge often a fetid sanies, or are covered with a coagulated crust, which is renewed whenever it is separated. The edges are livid, with irregular granulations, which sometimes run into a bloody fungus. During the whole of this period the appetite continues good, and though tensive pains arise, and are necessarily distressing, yet, on the whole, the patient feels little inconvenience.

The state of the bowels is very various. The stools are often frequent and offensive ; but there is sometimes an obstinate costiveness. The urine is commonly high-colored and fetid, the pulse feeble, but rarely quick. A weakness in the joints appears early, and increases with the disease ; and a shrinking of the flexor muscles renders the limb useless, producing the scorbutic paralysis of Dr. Lind. The calves of the legs fall away, with sometimes an irregular hardness, and at length become edematous, while the bones themselves, no longer supplied with a sufficiency of calcareous earth, give way at the callus of fractures, and those of which have been formerly broken and reunited, become again separate at the line of reunion.

The last stage is truly distressing. Blood is frequently discharged from the intestines, bladder, and other organs. The slightest motion brings on faintness, and often immediate death. Catchings of the breath and syncope, sometimes slightly experienced, indeed, at an earlier period, are now frequent and dangerous ; yet the sense of weakness is so much less than its real amount, that the patient often attempts exertion, and dies in the very effort ; though, more frequently, he survives the attempt for a short time, and especially when animated by any powerful and pleasant motive, as the hope of getting on shore, or even of engaging in fight with an enemy.

*Causes.*—The more important of the causes of scurvy are poor diet, impure air, anxiety of mind, and a too sedentary mode of life. It is also produced by habitual gluttony, and the use of spirits. The want of fresh food in long sea-voyages, connected with filthiness and the depressing effects upon the mind consequent in such circumstances, often bring on the disease. A great many have died in California within the past two or three years for the want of proper food. People going to that country have been obliged often to subsist on the most concentrated forms of aliment, and not even then of the best kinds. Now for a man to undertake to live for a certain time on superfine

flour, sugar, molasses, and salt meat is most preposterous, for such articles can not possibly sustain life for a long time. The salt meat will in time make him sick, and the other articles are too rich to support vitality; they have not sufficient bulk in proportion to their nutriment, and, therefore, can not sustain life.

*Prevention.*—Within the past few years a great deal has been done in the way of preventing scurvy in armies and among seamen during long voyages at sea. Much good has been accomplished by paying a proper regard to cleanliness, bathing, ventilation, and diet. It has been most satisfactorily proved that nothing is easier, than by a combination of proper circumstances, to prevent scurvy in almost any conceivable case; and in no respect whatever have the efforts of humane and philanthropic individuals been more signally crowned with success than in regard to the prevention of this dreadful malady.

*Treatment.*—The great remedy for this disease appears to be proper food. This, however, would not accomplish much in bad cases, without the aid of cleanliness, proper clothing, ventilation, exercise, etc., in short, all the adjuncts that go to give tone and vigor to the weakened constitution. Not a long time ago, scurvy was regarded as an incurable disease; but it is not so now, for experience abundantly proves that it can not only be cured, but, what is incomparably better, it can be prevented, and that by attention to very simple means.

*Vegetable Acids.*—It has become a bone of contention within a few years past, whether lemon juice, vinegar, etc., remedies which have on the part of some been very highly extolled, do, after all, accomplish any good in the prevention and cure of scurvy. On the one hand it is asserted that it is in consequence of the other means used in connection with these articles that the cure is effected, while on the other it is maintained that when lemon juice, for example, has been alone used, and without any other change being made, that the disease has been thoroughly eradicated from a body of seamen. One thing is certain, and of which I can myself speak from experience, which is, that while at sea we have a much greater craving for acids than we do when on land. There is probably something connected with the sea air that causes this circumstance; and it is probably true that there is a chemical need for more of such articles at sea than on land. At any rate, a moderate use of them can do no harm, and may do much good.

#### MACCULAR, OR DISCOLORED SKIN.

*Freckles, lenticula, or lentigo*, consists of yellow brown spots, which may be either transient or permanent upon the skin. It may be hereditary, spontaneous, or caused by exposure to the sun. They are most

common with persons of fair complexion and red hair. By frequent washings, and attention to the general health, it is sometimes curable.

*Sunburn* is too well known to need any special description. It passes off spontaneously in the winter, and whenever the cause is removed.

*Veal skin* consists of white, glabrous, shining, permanent spots, preceded by white, transitory elevations or tubercles of the same size, often coalescing and creeping into a serpentine direction, the superincumbent hairs falling off and never re-sprouting. The size of the spots vary from that of a millet seed to that of a twenty-five cent piece. The cure must depend upon restoring the lost vital energy of the parts.

*Mole* is a common blemish, but one of little importance. It consists of a brown, permanent, circular patch; solitary, sometimes slightly elevated, and crusted with a tuft of hair. It is congenital, but differs entirely from genuine mother marks.

*Orange skin* is supposed to be simply a form of jaundice, such as we often see in new-born infants.

In *piebald skin* there are alternate spots of black and white, the cuticle having a marbled appearance. It occurs chiefly among negroes. Its cure depends upon a restoration of circulation and functional power in the skin.

In *Albino skin* the surface is of a dull white; the pupils of the eyes rosy, the sight weak, and strongest in the shade. It occurs among both blacks and whites. It is incurable.

#### CUTANEOUS EXCRESCENCES.

These are *caruncle*, *wart*, *corn*, *bunion*, *callus*.

*Caruncle* is a "soft, fleshy, often pendulous excrescence of the common integument." It may occur upon any part. It is sometimes seen about the arms and genitals, as an effect of venereal disease. It is of all sizes, shapes, shades of color, and degrees of hardness; sometimes painful, but not always.

*Treatment*.—These growths sometimes go away of themselves, and sometimes cold bathing cures them. The water dressing is also useful. The most effectual remedy, however, is to cut them off with a knife or surgeon's scissors; or they may be removed by ligature.

*Wart* is a "firm, hard, arid, insensible exuberance on the common integument," found chiefly on the hands, but occurring occasionally on other parts. Warts are of three kinds: the *simple* and *distinct*, the *lobed*, or that which is full of holes and fissures, and the *confluent*, or that which appears in coalescing clusters.

*Causes*.—There can be no doubt but that persons of uncleanly

habits are more liable than others to warts. Grossness in food likewise has its share of influence in producing them. They are sometimes infectious. Children and the young are more subject to them than the old. Those who are obliged to use the hands much at hard and dirty work, and especially those whose occupations expose them to great extremes of temperature, are most liable to these morbid growths. They appear more frequently on the hands, because these parts are more exposed to the causes that generate them.

*Treatment.*—Warts often disappear while the patient is undergoing a course of water treatment. This happens in consequence of the purifying and stimulating effects of a hydropathic course. Wearing stimulating wet bandages upon warts, and washing the parts often with cold water, will not unfrequently drive them off, even when other means have failed. Paring them, as a preparatory measure, is useful. Rubbing nitrate of silver upon them, paring them well in the first place, removes them in some cases. Touching them with nitro-muriatic acid by means of a camel's hair pencil or a feather will sometimes remove them—some say always. This it does by causing them to ulcerate and slough out. The application should be made carefully, so as not to cause too great a sore. The effect of this treatment can not be harmful to the system at large. Hence, if other means fail, it is to be advised. Rubbing warts with muriate of ammonia will, it is said, remove them in the course of time without any inflammation or pain, unless they happen to be of a peculiarly hard description. In such a case a good paring, and soaking nights with a wet compress, would certainly be good auxiliary treatment. I find in my notes that a number of years ago, a lady of this city, residing in Fourth Street, applied to me to cure a crop of warts that had for some time been upon her hands. She was already hardy, in apparently good general health, and well accustomed to cold water, even in the coldest weather, as it was at this time. I told her that with the cold bathing and the great simplicity in diet she already practiced, it appeared to me that chilling the hands sufficiently in cold water ought to remove the excrescences. She at once said she would wash with her own hands the towels for the whole family, every morning, in water at very near the freezing point. This she continued to do for some weeks, chilling the hands every week-day morning, until they were completely benumbed. The warts were thus cured.

*Corns* are a "roundish, horny, cutaneous exuberance with a central nucleus, sensible at its base. They are found chiefly upon the toes, arising from the pressure of too tight shoes. They are sometimes, however, spontaneous and gregarious, spreading over the whole head

and body. They sometimes rise to a considerable height, assuming a sort of horny appearance. Oftener they are but flat and slightly elevated. They are of two kinds, *hard and soft*. The former occur on the surface of the foot, where the skin is liable to become dry and hard; the latter between the toes, where the cuticle is more soft and spongy. Soft corns are in general more painful than the hard.

*Causes.*—It is not a little surprising to see how far *fashion* sways people in many things. This truth is nowhere more strikingly exemplified than in the use, or rather *abuse*, of the feet. Every one knows that those who wear shoes of a proper size never have corns, however active their habits may be. Some have, indeed, gone so far in pinching their feet, as to cause some one of the toes to be pushed up out of its place, and made to ride upon its neighbor. In this way corns have been caused, and so painful, that actual amputation of the toe has been performed. Think of that—a man having to get his toe cut off merely because he would persist in wearing shoes too tight!

*Treatment.*—It is an instructive fact in regard to corns, as also warts, bunions, etc., that a course of water treatment generally removes them wholly, or prevents all pain. Those who bathe habitually in cold water are seldom troubled with corns.

To extirpate the corn the following plan has been adopted by some surgeons: The foot is bathed in warm water nights and mornings, and the corn kept continually covered with a plaster consisting of equal parts of soap plaster and oil, spread on very soft leather. When the corn has become soft and sodden by these means, an oblique incision is made with a lancet or other sharp instrument completely round it, and converging to its center, but without cutting deeply enough to wound the skin. When enough of it has been detached in this manner, it is twisted around with a pair of forceps till the root is pulled out. In many cases this method succeeds well. The same kinds of caustic applications mentioned in the treatment of warts, are equally applicable to hard corns.

*Bunion* is likewise one of the “fashionable diseases,” and caused in the same way as corns. It consists of a painful swelling of the inner side of the great toe joint, although the same thing happens now and then on the instep. When it is situated at the toe, the member always becomes distorted, the joint thrown outward, and giving the foot a very unnatural appearance. The beginning of the difficulty is first known by some pain and redness, accompanied with a degree of swelling. If the pressure is now wholly discontinued, the trouble soon vanishes;

Fig. 68.



BUNION.

but if it is kept on, it is certain to grow worse. After a while the redness and tenderness disappear, but the part feels as if full of fluid, and in time it becomes hard and grizzly like a corn. In other cases the part becomes ulcerated, forming a fistulous opening that it is almost—if not quite—impossible to heal.

*Treatment.*—Taking off all pressure is manifestly the first thing to be done. The bunion, if hard, may also be pared and operated on like a corn. Says an English author, “the bunion, when once actually formed, is scarcely possible ever to get rid of, and it remains an everlasting plague.” The water dressing affords some more hope in the case, it must be admitted; but a bad bunion is a bad thing, making the best of it.

#### MORBID SWEAT.

There are several varieties of preternatural secretion upon the skin, all of which are conveniently classed under the above head.

*Profuse sweat*, when caused by fever, heat, or exercise, is not morbid; but in fat persons, and others of relaxed habits, it sometimes occurs as an evidence of debility.

*Bloody sweat* is sometimes seen in fevers of great debility, and in land and sea scurvy, as also in deranged menstruation; but as an idiopathic affection, it has been known to occur in consequence of some violent commotion of the nervous system, as in coition, in vehement terror, and during the agony of hanging.

*Partial sweat* is usually symptomatic of some other morbid affection. There is one case on record of a woman who could never be made to perspire, either naturally or artificially, but who, when pregnant, perspired on the left side. Some persons perspire more freely than natural at the head, others at the feet, etc.

*Colored sweat* is caused by inhaling metallic fumes, by working in mercury, by nitrate of silver, taken internally, tobacco, and a variety of similar means. If the bile is reabsorbed in the circulation, it may and often does cause a yellowness of perspiration.

*Scented sweat* is owing either to some morbid condition of the fluids of the body, as in rheumatism, fevers, etc., or to sulphur, musk, tobacco, and other like substances that are taken into the system, and find their way out again at the surface.

*Sandy sweat*, or that in which the cutaneous exhalation contains a discharge of sandy or other granular molecules, is supposed to happen sometimes as a preventive of stone in the bladder. It appears also to occur where too much saline or earthy matter has been taken into the system.

The *treatment* in the above morbid conditions is sufficiently obvious.

## CHAFING, OR GALLING.

It sometimes happens that in consequence of two surfaces of the body coming in contact, a degree of soreness ensues, which in some cases amounts to a good deal of suffering. Young children in particular are liable to chafing between the rolls of fat upon different parts of the body, and more especially about those regions where the urinary discharges collect. Adult persons, when fat, are also apt to become chafed about the groin and other parts where folds of flesh overlap each other. These troubles are, of course, more common in hot than in cold weather.

*Treatment.*—In all cases perfect cleanliness—the most strict and constant—is the great thing. In the case of infants use a soft sponge, and the purest, softest water that can be obtained. It is not necessary that it be very cold; it may, indeed, be used quite lukewarm, *but never hot*. To secure the most perfect cleanliness, use a little mild, unscented soap now and then, if necessary. Use the sponge and water three, four, or more times each day. If a rash comes out, or if the chafing appears to grow worse under such treatment, we may be sure that the blood is impure, and that there is something in it which ought to be expelled. If the treatment is persevered in, every thing becomes right in due time. Dry, impalpable powders, such as are sometimes used for chafing, no doubt do good often; but the water treatment I regard as being altogether the best.

In regard to the management of infants, I remark that using oil silk over their diapers, which is frequently done now-a-days, is a very bad practice, and one that tends powerfully to cause chafing. The oil silk acts, not only by preventing the evaporation of moisture from the body, but by throwing back upon the surface various impurities, which are certain to become the cause of disease. Not only should oil silk be wholly dispensed with in the management of children, but the parts also that are liable to become soiled by the natural discharges should be kept as constantly dry and clean as possible.

The treatment of chafing in adults is essentially the same as that above described.

## CHAPPED HANDS, FEET, AND NIPPLES.

What is termed *chapping* of the skin, is usually the effect of wet and cold. Filthiness of the surface and impure blood have also much to do in causing chap. It is indeed doubtful whether a person who is in all respects healthy, ever experiences this evil. One of the most common effects of water treatment in cold weather is the production

of chap. Some years ago when I myself was quite feeble, and a great sufferer by dyspepsia, caused by great exposure to the fumes of mercury and various other poisons, I commenced a course of water treatment in earnest upon myself in the beginning of winter. One of the effects was, that during the whole of the cold season, my fingers and ankles cracked to as great an extent as I ever saw in any case. I was satisfied that all this trouble was in consequence of bodily impurity, which I hoped in the end to throw off. My health became greatly improved, so that by the second winter of my cold bathing, as well as ever since, I have experienced no further trouble of the kind. I have often had similar cases, in all of which if the patient has become cured as regarded the general health, the chapping of itself ceased. I am not quite satisfied why it is that women are subject to this trouble more than men; perhaps it is because they are more indoor in their habits; possibly, also, they are generally more unhealthy than our sex. Singular, too, as it may appear, almost all nursing mothers are troubled with chapped nipples. This assuredly can not be the order of nature: and we know positively by the facts of experience, that a woman who has always when nursing had this affection, under the ordinary modes of puerperal management, can so purify and harden her constitution by a judicious course of water treatment, as wholly to free herself from it. This, then, is an important matter, and one which should be remembered by all who are interested in avoiding so painful and troublesome an affection.

*Treatment.*—I know of no means so good for chaps as the water-dressing, suited to the feelings of comfort. Nights especially this remedy may be advantageously used. If we can but manage it rightly, it will cure in a shorter time than any other application we can make. If the cracks are bad, as for example upon the fingers, it is sometimes useful to apply pieces of sticking plaster to hold the cracks together, and to shield the parts from cold, moisture, and filth. Washing chapped parts in cream is useful. One of the best of all applications for the hands, is to wash them in tepid water with a handful or two of Indian-meal in it. The treatment of *chapped* or *sore nipples* is to be conducted on the same general principles as for other chaps. Sponging the parts, in order to insure the strictest cleanliness, after each time of nursing, is of great importance. The water dressing should be persevered in accordingly as the pain and soreness demand. *Chapped lips* are also to be treated in a manner similar to other forms of this affection.



## DISEASES OF THE HAIR.

Of the diseases of the hair, there are several varieties, which need be but briefly noticed

In *matted hair* "the hairs are vascularly thickened, inextricably entangled, and matted by the secretion of a glutinous fluid from their roots." It arises from uncleanness, and is contagious. Our method of cure is obvious.

In *bristly hair*, the hairs of the body are heavy, rigid, and bristly, there is a corpulence of the hair, so to say. The disease is both hereditary and acquired. The general health should be attended to.

*Extraneous hair* implies a growth of hair upon extraneous parts, as in bearded women, and a superfluous growth upon parts common. Plucking the hairs is perhaps the only reliable cure.

*Forky hair* is a common affection, and depends upon deficient nutrition at the roots of the hair, in consequence of which the ends brittle and split. Cutting the hair and stimulating the surface by frequent washings and frictions are all useful.

*Gray hair* is owing to deficiency of coloring matter, or to a morbid condition of the nutriment the hair receives. It sometimes comes on, as it were, suddenly, but more frequently by imperceptible degrees. It is in a great part hereditary and the common lot of man. The general health has something to do with the time of its appearance. Severe sickness often induces it.

*Baldness* is a decay and fall of the hair. It is often hereditary. Baldness may arise from fevers, diseases of the scalp, etc. Men are more subject to it than women, probably because of their having their head covered more of the time, and with hats that heat the head more than the head coverings used by women. The ten thousand washes, ointments, etc., put forth by charlatans for the pretended cure of the hair, are none of them to be relied upon; they generally do far more harm than good. Attention to the skin and to the general health is the only rational means. In a few cases water treatment has restored a growth of hair when it had been lost. One old gentleman who wore a wet sponge much of the time for months for a headache got a new crop of hair in consequence.

*Miscolored hair* arises from a change or deterioration in the coloring matter supplied at the roots of the hair. It may become of a bluish color, darker than is natural, greenish, or spotted like the hair of a leopard. In the same manner that severe disease, such as low fevers, fright, and other violent commotions in the system have proved a cure for paralysis, and other nervous disorders, miscolored hair may, by a

new action set up in its roots, be again furnished with its proper pigment.

*Sensitive hair* is dependent upon a morbid condition of the blood-vessels and nerves of the scalp. The hair in such cases sometimes takes on a very high and painful degree of sensibility; clipping a single hair, even when the patient's attention is engaged in something else, will, in some extreme cases, produce a high degree of nervous excitement. The cure of course depends upon the removal of the cause.

There is on medical record a singular case of this remarkable disease. "In the hospital of the Royal Guard, at Paris, was a private soldier who had received a violent kick on the occiput from a horse. The cerebral excitement produced was extreme, and could only be kept under by almost innumerable bleedings, both local and general. Among a series of phenomena produced by this state of preternatural excitation, the sensibility acquired by the hairs of the head was not the least remarkable. The slightest touch was felt instantly, and cutting them gave exquisite pain, so that the patient would seldom allow any one to come near his head. Baron Larrey, on one occasion, to put him to the test, gave a hint to an assistant who was standing behind the patient, to clip one of his hairs without his perceiving it. This was done with dexterity, but the soldier broke out into a sally of oaths, succeeded by complaints, and it was some time before he could be appeased."

The above case is certainly a very singular one; but if the patient could have been subjected to a judicious course of water treatment instead of the "innumerable bleedings," the result would have been vastly different. Bleeding, to say the best of it, for the purpose of "calming cerebral excitement," is no more when compared with water properly applied, than a mere drop in the bucket—as near nothing can be well imagined.

## CHAPTER XI.

### OF THE BONES, MUSCLES, AND JOINTS.

THERE are, in the human skeleton, 240 bones, including the teeth,  
to wit:

Fig. 69.

|                         |     |
|-------------------------|-----|
| Skull.....              | 8   |
| Ear.....                | 4   |
| Face.....               | 14  |
| Teeth.....              | 32  |
| Trunk .....             | 54  |
| Pelvis .....            | 4   |
| Upper extremities ..... | 64  |
| Lower " .....           | 60  |
| Total.....              | 240 |

In adults, the bones of the human body are firm and hard in structure, and of a dull white color. They are composed of earth and lime, held together by gelatin, which is a gluey or animal substance. If we burn a bone in a clear fire twenty or thirty minutes the animal substance is destroyed, leaving it white and brittle.

On the other hand, if we immerse one of the smaller bones in muriatic acid and water, one proportion of the former to six or eight of the latter, the earthy matter is removed, leaving the gelatinous portion in such a state that it can be bent or even tied in a knot without destroying the form of the original bone. See fig. 79 on p. 497.

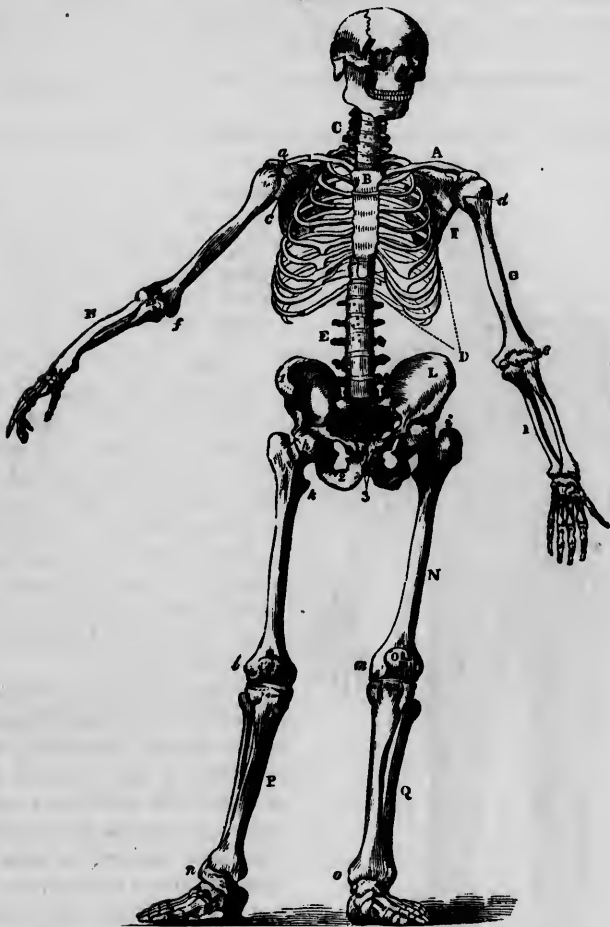
Bones in their earlier stages of formation are merely cartilaginous; subsequently they be-



RELATION OF BONES TO BULK.

come earthy when they are said to be *ossified*. Like all other parts of the body they are liable to constant change, having a system of

Fig. 70.

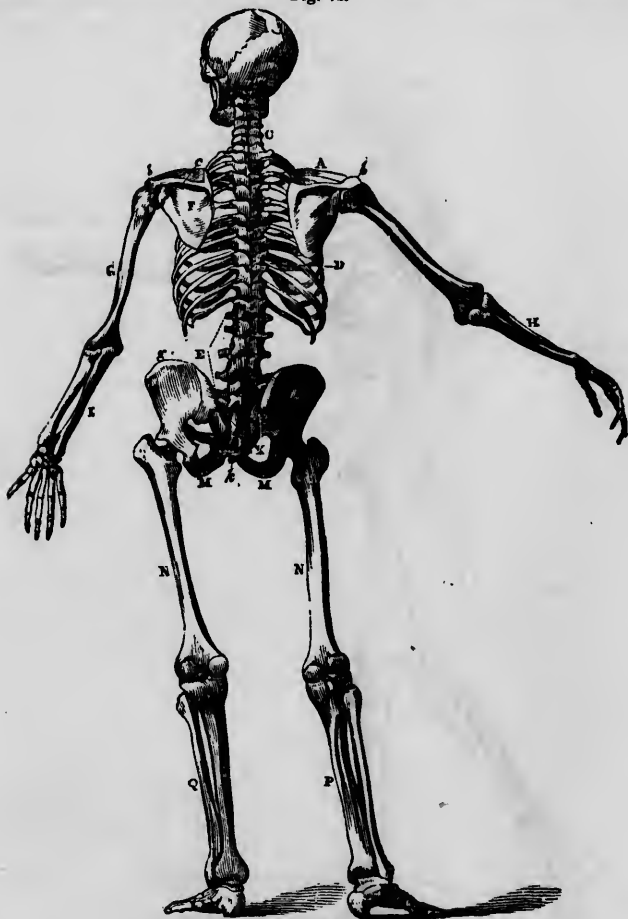


VIEW OF FRONT SKELETON.

A, the clavicle, or collar-bone. B, sternum, or breast-bone. C, the cervical vertebræ, or those of the neck, seven in number. D, the five false ribs. E, the lumbar vertebræ of the loins. F, the scapula, or shoulder-blade. G, the humerus, or arm-bone. H, radius, I, the ulna. K, sacrum, or sacral bone. L, innominatum, or nameless bone. N, femur, or thigh-bone. O, patella, or knee-pan. P, and Q, tibia and fibula, or bones of the leg.

nerves and blood-vessels, by which they are continually nourished. They are covered by a fine membrane called the *periosteum*, except those parts that are inclosed by cartilage, as at the joints. The crowns of the teeth also have no periosteum, but are protected by a hard

Fig. 71.



VIEW OF BACK SKELETON.

A, clavicle, or collar-bone. C, cervical vertebrae. D, the dorsal. E, the lumbar. F, the scapula. G, the humerus. H and I, bones of fore-arm, or radius and ulna. K, sacrum. L, Ileum. M, ischium. N, femur. O, patella. P, tibia, or large bone of the leg. Q, fibula.

enamel. The periosteum, when healthy, possesses little sensibility, when diseased it may become very sensitive and painful.

Bones are said to be *cylindrical*, as in the arms; *flat*, as in the shoulder blades; and *irregular*, as the pelvic bones, ribs, skull, etc.

Everywhere in the living body we can trace the evidences of design. Thus we find that all the large bones, such as those of the arms and

Fig. 72.



VIEW OF SIDE SKELETON.

F, scapula. G humerus. H and I, bones of fore-arm, radius and ulna. K, sacrum. L, innominatum. M, ischium. N, femur. O, patella. P, tibia. Q, fibula.

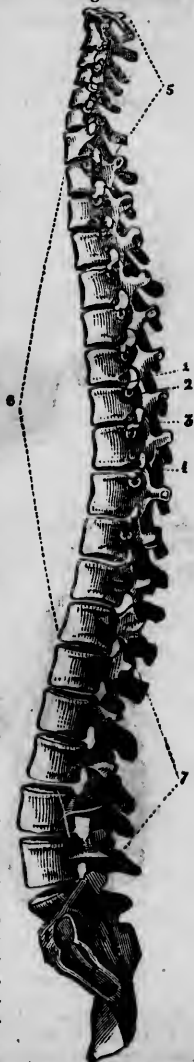
legs, are hollow. Thus they are rendered both lighter and stronger; and, besides, the hollow serves as a store-house of nutriment. The marrow is not, as some suppose, placed within the bones to keep them from becoming brittle, but to supply the system with nutriment, when by reason of fever, or other disease, the stomach is not able to digest food.

And still another fact: In the upper arm we find but one bone, whereas in the fore-arm there are two. The same is true of the thigh and leg. The reason of this is plain. The thigh and upper arm do not have to perform any thing like as many motions as the leg and fore-arm. Hence, for the more convenient attachment of muscles, required in numbers according to the number of movements to be made, the two bones are placed where two are most needed.

So, too, in the formation of the spinal column. If it were made in a straight line it would almost constantly be liable to be broken; but as it is formed of a double curve it readily yields somewhat when any unusual weight comes upon it, and thus prevents one of the most fearful accidents to which the system is ever liable.

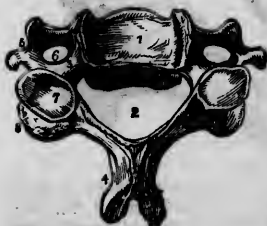
Fig. 73 represents the vertebral column entire, seen from the left side. 1. Two semi-facettes, which articulate with the head of the rib. 2. Spinous process. 3, 4. Two foramina, each resulting from the union of two vertebrae. 5. Cervical region and its corresponding curve. 6. Dorsal region and its corresponding curve. 7. Lumbar region and its corresponding curve. 8. Sacrum.

Fig. 73.



VERTEBRAL COLUMN.

Fig. 74.



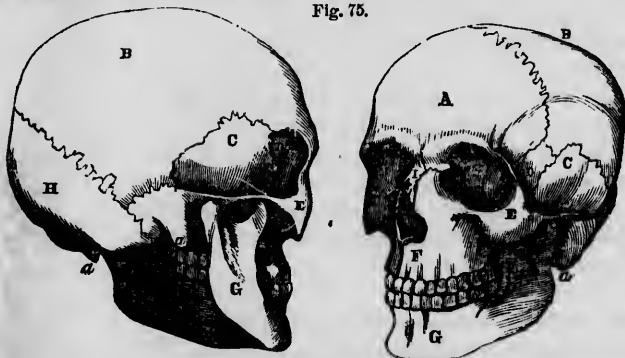
A CERVICAL VERTEBRA.

The distinctive parts of a vertebra are seen in fig. 74.

1. The body, concave in the center, and rising into a sharp ridge on each side. 2. The lamina. 3. The part called pedicle, rendered concave by the superior intervertebral notch. 4. Spinous process, its extremity bifurcated. 5. Transverse process. 6. Vertebral foramen. 7. Superior articular process. 8. Inferior articular process.

**The Skull.**—This consists of two parts—the cranium and the face. The former contains and protects the brain, being admirably calculated in form, structure, and strength for the office it performs. The latter contains the chief organs of sense. There are eight of the cranial bones: one frontal; two temporal; two parietal; one occipital; one sphenoid; and one ethmoid.

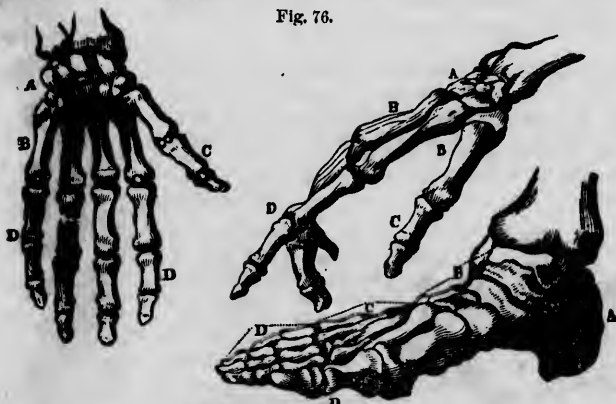
Fig. 75.



BONES OF THE HEAD.

A. Os frontis, or forehead bone. B, B. Ossa parietalis, or bregmatis. C, C. Os temporum. D, D. Os sphaenoideum. *a, a.* The mastoid process. E, E. Os jugale, or os malare. F, F. Maxilla superior, or upper jaw. G, G. Maxilla inferior, or lower jaw. H. Os occipitis, or back of head. I. Os nasi.

Fig. 76.



BONES OF THE HAND AND FOOT.

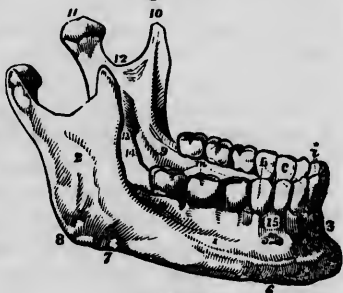
**HAND.**—A. Bones of the carpus, or wrist. B. Bones of the metacarpus, or hand. C. Bones of the thumb. D. Bones of the fingers. **Foot.**—A. Os calcis, or heel bone. B. Tarsus, or instep, composed of six bones besides the  $\propto$  calcis. C. Bones of the metatarsus, or foot. D. Bones of the toes.



The *inferior maxillary bone*, or *lower jaw*, is an arch of bone containing the inferior row of teeth. It consists of a horizontal portion, a perpendicular portion, and the ramus at each side. See fig. 77.

1. The body. 2. The ramus. 3. The symphysis, or point of union. 4. Fossa for the depressing muscle of the lower jaw. 5. Mental foramen. 6. External oblique ridge. 7. Groove for the facial artery. 8. The angle. 9. Extremity of the mlo-hyoidean ridge. 10. Coronoid process. 11. Condyles, which articulate with the glenoid cavity of the temporal bone. 12. Sigmoid notch. 13. Inferior dental foramen. 14. Mlo-hyoidean groove. 15. Alveolar process. *a*. The middle and lateral incisor tooth of one side. *b*. The canine tooth. *c*. The two bicuspsids. *m*. The three molars.

Fig. 77.



LOWER JAW.

The bones may be considered the framework of the system, maintaining all its parts in their normal position. Without this framework the strongest man would be more feeble than the new-born child. These important parts of the system are also subject to growth, decay, and disease, as well as the softer parts of the living structure.

Fig. 78.



MINUTE STRUCTURE OF BONE.

Fig. 79.



BONE TIED IN A KNOT.

A microscopic view of the minute structure of bone is shown in fig. 78. 1. One of the Haversian canals, surrounded by concentric lamellae. 2. The same, with the cells and tubuli. 3. Area of one of the canals. 4, 4. Direction of the medullary, or central canal. The upper part of the cut represents several long corpuscles, or cells, with their tubuli; the lower part exhibits the outlines of several other canals.

The importance of a firm, healthful growth of the osseous system has not hitherto been sufficiently considered. Remembering that the bones of the newly-born child are very soft and delicate, the greatest care should be taken in its management. It should be handled always with prudence and caution; otherwise distortion of some part of the body will be liable to result. The child, too, after he begins to go to school should be allowed to change his position frequently, and, above all, should not be kept upon those barbarous benches that we often see in our school-houses. Not only should the seat be low enough for his comfort, but the back should also be supported in a proper manner. As the child advances further in years he should not be put at work too severe for his bony structure—a thing which is often done; nor should he, on the other hand, be kept cooped up almost constantly in schools, mercantile houses, and the like. The growing girl in particular should be allowed more physical freedom than is usually the case in society as at present constituted.

#### THE MUSCULAR SYSTEM.

*Muscle*, in common language, signifies *flesh*. It is the muscles that give form to the body, and constitute its greatest bulk. Wherever a motion of any kind, whether voluntary or involuntary, is to be performed, the action of one or more of the muscles is concerned. Without them, the bony framework would be wholly powerless and without movement of any kind.

Muscles—five hundred and twenty-seven in number in the human body—are of two classes, *voluntary* and *involuntary*: the first act in obedience to the will only; the second wholly independently of it. Thus the heart acts whether we will it to do so or not; so also the respiratory organs while we sleep.

These parts present a great variety of forms: they are round, flat, triangular, or square. They vary also much in size and length; some are very large, while others are very small. Some of the muscles in the larynx that go to vary the voice are very diminutive, and not more than a fourth of an inch in length. The *Sartorius*, or tailor's muscle, which is used in crossing the legs, extends from the top of the hip bone to several inches below the knee, making it, in an adult, about three feet long. Some of the muscles are also very broad, as the *lattissimus dorsi* upon the back, and which measures about one foot in width.

Muscles are composed of very small bundles of fibers, bound together by a shiny, elastic covering, and these again are bound securely together by a genera. covering, into one mass.

The extremities of muscles are smaller and more tough and com-

pact than the body, constituting *tendons*, or *cords*. It is by these that the muscle is attached to the bone, the union being so firm that the

Fig. 80.



VIEW OF THE MUSCLES OF THE FRONT FIGURE.

A. Platysma myoides. *a.* Sterno hyoides. *b.* Mastoideus. B. Deltoides. C. Biceps brachii. D. Pronator radii teres. E. Supinator radii longus. F. Flexor carpi radialis. G. Palmaris longus. H. Flexor carpi ulnaris. I. Pectoralis major. K. Obliquus descendens. L. Rectus. L, L. Linea semilunaris. M. Linea alba. N. Poupart's, or Fallopius' ligament. O, O. Sartorius. P. Tensor vaginæ femoris. Q. Gracilis. R. Iliacus internus. S. Pectinialis. T. Triceps abductor femoris. U. Psoas magnus. V. Vastus externus. W. Rectus femoris. X. Vastus internus. Y. Gastrocnemius. *y.* Soleus. Z. Tibialis anticus.

bone itself often breaks and gives way before the tendon can be torn. The muscles are supplied with nerves and blood-vessels in all of their

Fig. 81.



VIEW OF THE MUSCLES OF THE BACK FIGURE.

A. Mastoides. B. Trapezius, seu Cucullaris. *a.* Infra spinatna. *b.* Teres minor. *c.* Teres major. C. Latissimus dorsi. D. Deltoides. *f.* Triceps brachialis. *g.* Anconeus. *d.* Extensor carpi radialis longus. E. Sacro lumbalis. F. Longissimus dorsi. G. Gluteus medius. H. Gluteus maximus. I. Semitendinosus. K. Semimembranosus. L. Biceps femoris. M. Gastrocnemius externus.

minutest parts. It is through the agency of these that the muscles grow and maintain their strength.

Fig. 82.



VIEW OF THE MUSCLES OF THE SIDE FIGURE.

A. Deltoides. B. Biceps brachii. C. Brachialis internus. D. Supinator radii longus. E. Triceps. F. Trapezius, seu Cucullaris. G. Latissimus dorsi. H. Serratus major anticus. I. Obliquus descendens externus. K. Glutæus maximus. L. Glutæus medius. M. Rectus femoris. N. Vastus internus. O. Vastus externus. P. Tendons of the semi-membranosus and semitendinosus muscles, forming the inner hamstring. Q. Tendon of the biceps femoris, forming the outer hamstring. S. Gastrocnemius externus. T. Soleus. U. Peroneus tertius. V. Extensor longus digitorum pedis. W. Tibialis anticus.

One of the most remarkable of all the vital properties of the human system, is *contractility* of the muscular tissue. This remains permanent as long as life lasts. The muscles of themselves never can become weary, but only the nerves with which they are supplied. The growth, development, and healthfulness of no part of the system is more under the power of voluntary control than this. If the muscles are not used regularly as the Creator designed, they grow weak, flabby, and small. It is a law of nature that muscular exercise should be frequent, but not excessive. Some among laborers, pugilists, circus players, and dancers, exercise their muscles more than is for the best good of the system. Such persons do not live to a great age, usually, and are apt to be attacked by tubercular disease. It is admitted, however, that their dietetic and other habits are, in most cases, far from what they should be. With a large portion of mankind the muscular system is but poorly developed in comparison with what it ought to be. Females in particular, in civic life, suffer in this respect.

Fig. 83.



Fig. 84.



VIEW OF THE MUSCLES OF THE HEAD AND NECK.

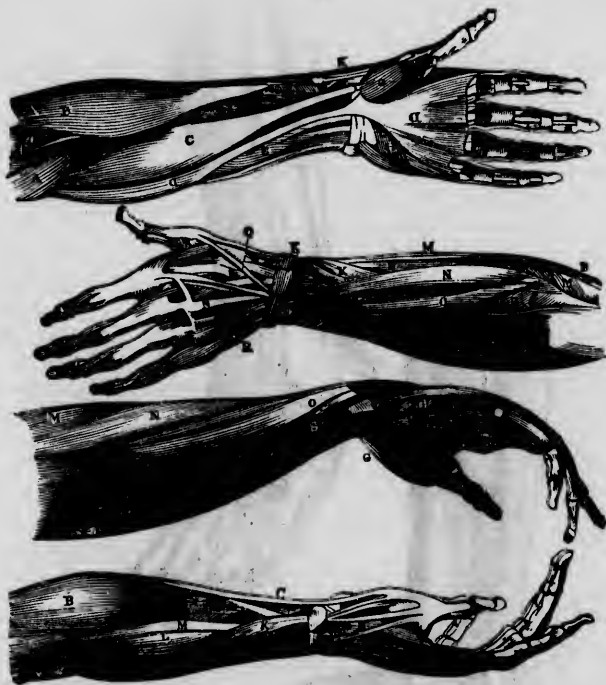
A. Occipito frontalis. B. Levator auris, or Attolens aurem. C. Concha. D. Orbicularis palpebrarum. E. Compressor narit. F. Zygomaticus major. G. Levator labii superioris alæque nasi. H. Zygomaticus minor. I. Levator anguli oris. K. Masseter. L. Buccinator. M. Depressor anguli oris. N. Sterno-cleido mastoideus. O. Depressor labii inferioris. P. Orbicularis oris. Q. Temporalis. R. Splenius. S. Trapezius, seu Cucullaris. T. Sterno-hyoideus. a. Helix. b. Anti-helix. c. Concha.

Through gymnastics alone, that is, muscular exercise in a great variety of ways, suited according to the nature of the case, some of the most inveterate diseases may be cured. There are many bed-ridden

den people who only need a proper course of this kind to make them well.

The effects of deficient exercise in producing disease, and that of the worst forms, has, in general, been almost wholly overlooked. Mr. Carmichael, of Dublin, an able writer who published a work on the nature of scrofula as early as 1810, in noticing the want of exercise as a cause of scrofula, as quoted by Dr. Combe, mentions, that in St. Thomas' Parochial School, *seven* out of *twenty-four* girls were affected with that disease during the preceding summer, owing to their exer-

Fig. 85.



VIEW OF THE MUSCLES OF THE FORE-ARM AND HAND

A. Pronator teres. B. Supinator radii longus. C. Flexor carpi radialis. D. Palmaris longus. E. Perforatus, and Perforans. G. Abductor pollicis manus. H. Palmaris brevis. K. Extensor pollicis. K. Extensor primi internodii. L. Extensor carpi radialis brevis. M. Extensor carpi radialis longus. N. Extensor digitorum. O. Extensor carpi ulnaris. P. Anconeus. Q. Extensor secundi internodii. R. Extensor minimi digiti. S. Flexor carpi ulnaris.

cise having been entirely interrupted, first by the flooding of the playground by many rains, and subsequently by the mistress having received orders "to keep the children perpetually within doors, at their school-books. In a very short time after "this cruel and impolitic experiment," scrofula began to make its appearance, and afterward affected nearly a third of their number, although none of them had the disease when admitted, and there was no fault of diet, or other cause, to which it could be ascribed. The same author also mentions that in the Bethesda School of the same city, *six* out of *thirty*

Fig. 86.



VIEW OF THE MUSCLES OF THE LEG AND FOOT.

A. Tibialis anticus. B. Extensor longus digitorum pedis. C. Peroneus tertius. D. Peroneus brevis. E. Peroneus longus. F. Soleus. G. Tendo Achillis. H. Extensor brevis digitorum pedis. L. Flexor longus pollicis pedis. M. Tibialis posticus.



girls, fed in the best possible manner, and free from the disease on their admission, were badly affected with it during the same summer. In these cases it arose from their having neither yard nor playground attached to the institution, in consequence of which "the children were necessitated to remain either in the school or bedrooms during play hours."

#### OF THE JOINTS.

One of the most beautiful, and at the same time wonderful, among all the works of nature is the apparatus by which the skeleton is held together. If the several bones which compose it were not secured in the firmest manner, it would be of little value to us. The numerous bands by which this object is effected are called *ligaments*; and the firmness and toughness of these parts is so great, that the bones themselves are often fractured before they become sundered or torn. It is wonderful, too, to see how admirably the ligaments are arranged to answer the purposes for which they were intended. Where the ends of two bones meet, as in some of the joints, ligaments pass across from one to the other; and so firm are they in their structure, that they never allow the joint to become loose, however much it may be exercised. Some of the ligaments are arranged so as to keep the joint from bending the wrong way. The knee joint, which, were it not for its numerous ligaments, would be altogether unfit for the important offices it fulfills, has in it two of these bands crossing each other like the legs of a saw-horse, in such a manner as to prevent the leg from being carried either too far backward or forward; and to guard against dislocations sideways, strong lateral bands are placed on each side of the joint. Not only the large, but the small bones of the body, likewise are bound together in this way as firmly as if they were secured by clasps of steel. Add to all this, the ligaments, like the bones themselves, are nearly insensible, being of a white and shining substance.

Some of the ligaments are represented in figures 87, 88, 89, 90, 91, and 92.

Fig. 87 represents some of the ligaments by which joints of the spinal column are held together.

1. Anterior common ligament. 2. Anterior costo-vertebral ligament. 3. Anterior costo-transverse ligament. 4. Interarticular ligament connecting the head of the rib to the intervertebral substance, and separating the two synovial membranes of this articulation.

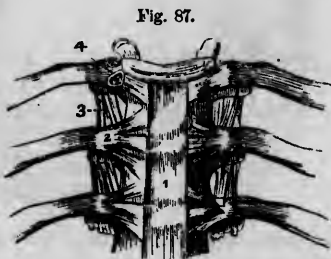


Fig. 87.

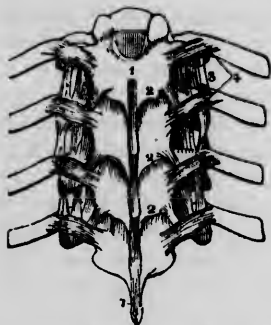
VERTEBRAL LIGAMENTS.

Fig. 88 shows, in addition, the manner in which the ribs are connected with the vertebral joints.

Fig. 89 exhibits the ligaments of the knee joint anteriorly; and fig. 90, posteriorly.

Fig. 91 exhibits the ankle joint externally. Fig. 92 the same posteriorly.

Fig. 88.



COSTO-VERTEBRAL JOINT.

Fig. 89.



KNEE JOINT ANTERIORLY.

Fig. 88 is a posterior view of a part of the thoracic portion of the vertebral column, showing the ligaments connecting the vertebrae with each other, and the ribs with the vertebrae. 1, 1. The supra spinous ligament. 2, 2. Ligaments subflava, connecting the laminae. 3. Anterior costo-transverse ligament. 4. Posterior costo-transverse ligaments.

Fig. 89 exhibits a front view of the ligaments. 1. The tendon of the quadriceps extensor muscle of the leg. 2. Patella. 3. Anterior ligament. 4, 4. Synovial membrane. 5. Internal lateral ligament. 6. The long division of the external lateral. 7. Anterior superior tibio-fibular ligament.

Fig. 90.

Fig. 91.

Fig. 92.



KNEE JOINT POSTERIORLY.



ANKLE JOINT EXTERNALLY.



ANKLE JOINT POSTERIORLY.

Fig. 90 gives a posterior view of the ligaments. 1. The fasciculus of the posterior ligament. 2. The tendon of the semi-membranous muscle, from which the posterior ligament

to derived. 3. The process of the tendon which spreads out in the fascia of the popliteus muscle. 4. The process which is sent inward beneath the internal lateral ligament. 5. Posterior part of the internal lateral ligament. 6. The long division of the external lateral. 7. Its short division. 8. Tendon of the popliteus cut short. 9. Posterior superior tibio-fibular ligament.

Fig. 91 is an external view of the ankle articulation. 1. Tibia. 2. External malleolus of the fibula. 3, 3 Astragalus. 4. Os calcis. 5. Cuboid. Anterior fasciculus of the external lateral ligament attached to the astragalus. 7. Its middle fasciculus attached to the calcis. 8. Its posterior fasciculus attached to the astragalus. 9. Anterior ligament.

Fig. 92 is a posterior view of the ankle joint. 1. Lower part of the interosseous membrane. 2. Posterior inferior ligament connecting the tibia and fibula. 3. Transverse ligament. 4. Internal lateral. 5. Posterior fasciculus of the internal lateral. 6. Middle fasciculus of the external lateral. 7. Synovial membrane. 8. Os calcis.

*Cartilage.*—This is composed of a white, elastic, glistening substance, commonly called *gristle*. Cartilages are divided into the *obducent*, which cover the movable articulations of bones; *interarticular*, which are situated between the articulations; and the *uniting*, which bind one bone to another. Thus they either facilitate the motion of the bones or unite them together. Were it not for the cartilages, the bones would wear upon each other in such a way as very soon to become inflamed. If they were at all thick and bulky, the joint would soon become loose; but such is not the fact, for cartilage is only about the sixteenth of an inch in thickness. Upon a convex surface it is thickest in the center, and thinner toward the circumference; upon concave surfaces the opposite state exists.

*The Synovial Membrane.*—This is the thin, delicate covering of the cartilages, which is also reflected back upon the inner surfaces of the ligaments that bind the joints, thus forming a closed sack within the part. The office of the synovial membrane is to secrete a fluid resembling the white of an egg, and which acts as oil to the joint. There is also a system of little sacks arranged about the joints, which are called technically *bursæ mucosæ*. These are analogous to the synovial membrane, and secrete the same kind of fluid. It is to be remarked, that these little bodies are formed of shape in accordance with the place they are to occupy. Where the most motion is to be required, there are the most and largest of them to throw out abundantly the oily fluid into the joint. Here, then, is a machine which not only oils itself, but keeps constantly supplied with the article.

## CHAPTER XII.

### DISEASES OF THE BONES, MUSCLES, AND JOINTS

#### RICKETS—RHACHITIS.

THE English word *rickets* is usually written in technical language *rhachitis*, which is thought to have been derived from the Greek word *rhachis*, the spine, inasmuch as this part is distorted in this disease. It is said that this affection prevailed extensively in some parts of England before it had engaged the attention of medical writers, and was then known provincially by the name of rickets. Hence Dr. Good observes, "it is more probable that rickets is derived from the Saxon *ricg* or *rick*—a heap or hump—and particularly as applied to the *back*, which also it denotes in a second sense; so that *ricked* or *ricket* is, literally, in its full import, *humpbacked*."

Some regard that rickets is of comparatively modern date. The earliest account of the disease is that published by Glissen, as it occurred in England in the middle of the seventeenth century. Others believe that it can be traced back as far as the Greeks and Romans; but there seems to be no conclusive proof on this point.

Dr. Baynard wrote in 1706 as follows, concerning the *causes* of this disease: "As to the rickets, it was a distemper in England almost worn out, but now it begins to come in play again. But in the time of King Charles I. it was almost epidemical, few families escaping it, especially those that were rich and opulent, and put their children out to nurse, where, through unnatural usage, and vicious, disagreeable milk, the infant was soon spoiled by contracting bad juices from the drunken nurse."

*Symptoms, Character, etc.*—This disease is generally preceded by a paleness and swelling of the countenance, and a yellow sulphuric hue of that part of the cheeks which is usually red. It generally comes on between the ninth and twenty-fourth month of age, although it is possible for it to appear at a later period, even after the bones have acquired their full size and firmness. It is said also that the disease has been found to occur in the fetus.

This disease ordinarily commences imperceptibly, and advances slowly. The body becomes emaciated, the flesh soft and flaccid, the cheeks pale or sallow, with some degree of swelling. "As the flesh

diminishes in bulk, the head is found to increase; the sutures gape, and the forehead grows prominent. The spine bends, and is incapable of supporting the weight it has to carry; the ribs and sternum partake of the distortion; the former lose their convexity and the latter projects into a ridge."

The general health fails in proportion as the disease makes its appearance. The digestive and assimilating powers are found to be especially enfeebled; the process of dentition is slow and imperfect; "the cellular membrane is without animal oil; the muscular fibres are tabid, without energy, and almost unirritable."

The chief difficulty of the system in rickets appears to be a lack of the due supply of bony matter, or of the phosphoric acid that should combine with it. A deficient supply or elaboration of bony earth in the organism, then, is the proximate cause of this disease. The remote cause or causes, however, are to be looked for in all those particulars and circumstances that tend to deteriorate the general health, such as foul air, improper and insufficient food, dampness, a want of air, exercise, and light, filthiness, and the other evils attendant upon a state of poverty. It is chiefly among the miserable huts of the poor, destitute, and profligate that rickets is to be found, although not always so, for in some cases we see the disease among the wealthy and best regulated families.

Rickets is often hereditary. "This disease," says Dr. Cullen, "may be justly considered as proceeding from parents; for it often happens in a great number of the same family; and my observation leads me to judge that it originates more frequently from mothers than fathers. So far as I can refer the disease of the children to the state of the parents, it has appeared to me most commonly to arise from some weakness, and pretty frequently from a serofulous habit in the mother." "I must remark, however," says Dr. Cullen, "that in many cases I have not been able to discern the condition of the parents to which I could refer it." The exact truth on the point appears to be, that rickets, like scrofula, consumption, and various other diseases, is sometimes hereditary, and probably often so, and sometimes is brought on by a variety of causes, which have no particular relation to hereditary descent. Every disease must have had a beginning at some period; and there can be no doubt that rickets is often brought on by a complication of causes, known or unknown, where the parents are wholly free from any tendency to the disease.

It is a singular fact in regard to this affection, that those who suffer from it appear to be brighter in intellect than the average of more healthy persons. In the ordinary course of things, the progress of the

body and of the mind is very nearly parallel ; but in a state of disease we often see a departure from this law of nature ; and "that even before the hour of death, the spirit gives tokens of an advance toward perfection, while the body in its general crisis is imbecile, or perhaps sinking gradually into ruins." In rickets, it would seem that the sensorial power which should be spent upon the bodily development at large is only the more concentrated upon the sensorium, rendering the individual more sharp and witty than he otherwise would be ; and hence the curious and interesting fact that among the names of those who have been pre-eminently gifted with mental talents in every age and nation, and have immortalized themselves as poets, philosophers, and even leaders in the field, a much greater proportion of the hump-backed and rickety appears than one would at first have any conception of. It is perhaps true, that some portion of this mental precocity, if such it may be called, is owing to the fact that deformity itself may sometimes prove a stimulus to extra mental exertion ; but there appears to be no reasonable doubt that the disease is apt to be attended with a high degree of sensorial power, although cases do now and then occur in which the mind as well as the body is weak.

*Treatment.*—Rickets should always be considered as a disease of debility ; and the method of treatment that will be found the most successful in curing it must be that which is best calculated to fortify and invigorate the general health. As to the theories of treating this disease chemically, none of them have succeeded ; for in the first place it has not yet been satisfactorily ascertained *what chemical ingredients are lacking in regard to the growth of the bones* ; and if this were ascertained, it would yet be a very doubtful matter as to whether the supply could be made up on any principle of chemical medication. Thus far, all that is known concerning the cure of rickets, proves that our dependence must be on such means as tend to the restoration of the general health ; in short, we must depend upon tonic treatment.

I ask now, in the light of science, where are we to look for the best and most effectual of all tonics ? Assuredly cold water, in connection with air, exercise, and diet, is that agent. "A pure, dry, and temperate atmosphere, a wholesome diet, regular exercise of such kind as can be indulged in with the least inconvenience, cleanliness and cold bathing," observes Dr. Good, have often worked a cure alone. "And," continues this author, "it is possibly owing to a more general conviction of the advantage of such a regimen in the present enlightened age, that rickets is a complaint far less common now than it was a century, or even half a century ago."

Sir John Floyer, an eminent physician who wrote in 1701, tells us

that rickets commenced in that country about the time when the trine immersion of infants began to be disused in the church. "Every parent," says this old writer, "wishes his child may be bred up to a great degree of hardiness. The best methods to attain that is the immersion at first into cold water at baptism; and afterward to use the method of washing their children in cold water every morning and night, till they are three-quarters old; for by this the Welsh women used to prevent the rickets in their children; and 'tis a common saying among their nurses, *that no child has the rickets unless he has a dirty slut for his nurse.*"

Sudden cold immersion, in cases of infants and children suffering from rickets, was long a favorite remedy with the English. They were in the habit of taking their children in the summer season to the coldest springs—*wells* as they were then called—to immerse them one or more times daily, according to their strength, and the method was found to be a remarkably effectual one. Sometimes the child was dipped with its linen upon it, and thus put to bed to sleep till toward morning, when dry clothes were substituted for the wet. It was of course warmly wrapped in blankets, so that it should not suffer from chilliness; and the method well managed is certainly a remarkably good one.

Smith, a writer on water in 1723, tells us that he advised a neighbor, whose child began to be rickety, to wash it daily in cold water, according to the practice of the Highland Scotch; "but she, instead of *washing* it, dipped it over head and ears every morning, it being then in the summer-time, the event of which was, the child became strong and had a good countenance, though before it was in the face very pale and wan, which shows how great the power of water is, when used outwardly, to invigorate the spirits and strengthen nature."

#### SPINAL DISEASES.

Diseases of the spinal column may be comprised under two heads—first, those of inflammation and its consequences, either with or without curvature; second, curvature without inflammation.

The more common form of inflammation in the spinal column is that of the vertebræ, the disease manifesting itself in the spongy texture composing those parts. It is known by a dull gnawing pain at the part, which is aggravated by pressure and motion. In a short time some degree of swelling usually manifests itself, causing the spinous process of the affected vertebræ to appear more prominent than natural; the appetite fails, and the strength grows less; the patient becomes dull and languid, and at length prefers the reclining posture, the lower extremities are reduced in flesh, and become affected with

numbness and rigidity; "the gait is awkward and vacillating, the legs sometimes crossing each other, while the trunk is held peculiarly erect and rigid, to protect the diseased part from motion." The patient sometimes loses the use of his legs entirely, and there is generally an uneasy feeling at the pit of the stomach, and a sense of painful constriction about the chest and abdomen. After these symptoms have gone on for a time, longer or shorter, according to the case, suppuration usually ensues, the matter being either confined to the neighborhood of the part affected, or passes down into the soft parts to *point* at another place. If the lumbar vertebræ are affected, the matter generally forms what is called *lumbar abscess*, or else passes along the psoas muscle to the groin, constituting *psoas abscess*. It is to be observed, also, that abscess may occur in both of these locations without the bones being affected, in which case the difficulty would be a much less formidable one. Speaking of ulceration of the spinal column, a late writer on surgery, Mr. Syme, observes: "When the pus ceases to be confined near the bone, and begins to drain away from it, the patient generally experiences great relief from his complaints. The pain becomes very much lessened, and the use of his limbs is often, in some measure, or altogether, regained. But this amendment is usually accompanied by a serious change to the worse in another respect, since the vertebral column is apt to bend under its superincumbent weight when weakened by the destruction of bone and intervertebral cartilage, which attends the suppuration. The curvature in this case takes place forward, and being confined to a small extent of the spine, causes an acute projection behind, so that one or more of the spinous processes appear to be dislocated backward. This change of shape does not take place either when the extent of the disease is small in proportion to the size of the bones in which it is seated, or when it is so great that the patient is constantly confined to the horizontal posture; but the latter circumstances are comparatively rare in proportion to those which favor the occurrence of curvature. The surface of the abscess either heals with approximation and consolidation of its parietes, the vertebræ concerned appearing as if run into one mass, or a state of caries remains, and gradually wears out the patient's strength."

Spinal disease of this kind may happen at any period of life, but is by far most common at from two or three to eight years of age. In adults it is next to impossible to cure it; in children there is a much better prospect, although the case is even here sufficiently difficult.

*Causes.*—Mechanical injuries, such as strains, twists, and blows are often alleged as causes of spinal inflammation; but the real cause, doubtless in the great majority of cases, is the deposition of



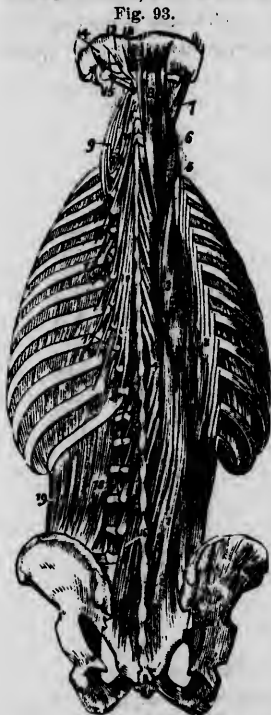
tubercular matter upon the part affected. This is particularly true in cases of children. In adults the disease is believed to be often excited by venereal abuses.

*Treatment.*—I am constrained to remark in regard to this form of spinal affection, that prevention is far better than cure. But inasmuch as this can not always be accomplished, and the disease being a most painful one in many instances, it is important to know what to do with reference to preventing the suffering and effecting a cure, if such is possible.

The treatment throughout should be of the antiphlogistic and tonic kind. The leintuch is worth vastly more than all opiates, blisters, issues, etc., for relieving the pain. A large wet girdle should be kept constantly about the affected part, and in very hot weather it must be changed often, so that it does not weaken by its warmth. The patient

should, indeed, almost literally live encased in the watery applications, and wet frictions upon the well parts of the system should be abundantly applied. The diet should be plain but abundant, according to the strength of the digestive organs.

#### CURVATURE OF THE SPINE.



When we consider how admirably the spinal column is adapted for the important offices it has to perform, we must be at a loss to know how it can be that it so often, in civilized society, becomes warped, rendering the subject a deformed, if not a crippled person for life. There is, in the first place, the strong bony framework of the part; and this again is bound together in all directions by ligaments, tendons, and muscles, which may well be compared to the rigging that supports the mast of a ship. In a natural state of the system, the individual never knows by his sensations that he possesses such a thing as a back; but in the artificial, and in many respects pernicious, customs of physical training, the spinal column is one of the first parts of the system to give way. This assuredly ought not to be, and would not, if nature's laws were not violated.

It is sad to notice how common distortion of the spine among females at the present day is getting to be ; it may be styled truly, the "fashionable disease." Nineteen out of every twenty of all the daughters of the so-called fashionable world are more or less crooked in this part. Either the spine curves too much backward or forward, or to one side or to both. But it is not the spine alone that is at fault ; the whole system is weak, and the reason why the spine becomes curved is, because it has the whole body to support, and being improperly nourished, it bends under its load. It is very important to remember these facts, because, in treating the ailment, we see how worse than useless all merely local and mechanical appliances must of necessity be. Those who are forever "tinkering" the human body with their "braces," and "supporters," at the same time using no efficient means for the betterment of the system at large, are either infamous villains or ignorant quacks. I do not say, mark, that mechanical helps are *never* to be used. They are sometimes a help *in connection with other appropriate means*.

Fig. 94.



NATURAL SPINE.

Fig. 95.



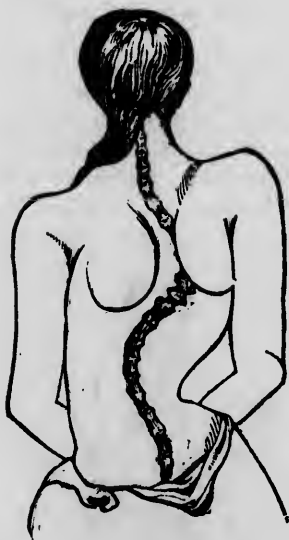
MISCEVATURE.

A simple form of spinal distortion is that in which stooping only is

caused. Fig. 94 represents the body in a natural and healthful position, while fig. 95 exhibits the opposite state of things. The spinal column is bent forward in its upper part, contracting the chest and giving to the body an unnatural bending forward.

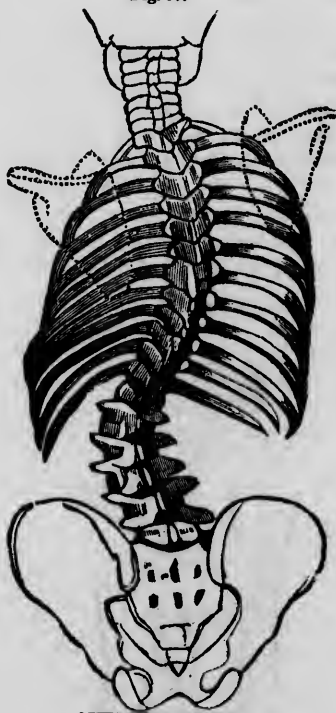
A very common form of spinal curvature is that which we see among young girls at boarding school, a *compound lateral curvature* as it is called. At one part the spine bends to the right, and at another to the left; the trunk is thus rendered crooked, and one of the shoulders thrown upward out of its place, while the opposite one is brought in a corresponding degree downward. Fig. 96 represents a curvature of this kind.

Fig. 96.



DOUBLE CURVATURE.

Fig. 97.



SINGLE CURVATURE.

Sometimes, also, the curvature is what is termed *single*. This is where the difficulty has not proceeded to so great an extent. A representation of the kind is intended in fig. 97.

*Causes.*—It is an instructive fact, asserted by Dr. Rush, as also others, that the Indians of our country, as a race, were not deformed before their acquaintance with the whites. Some have suspected that they destroyed such of their children as were found deficient in bodily conformation; but such has been well ascertained not to have been the case.

Leaving out of question the sickly condition in which children are generally brought into the world, there are many circumstances connected with their management in the present state of things which tend powerfully to cause the evil now under consideration. One of the most prominent among these is that of *swathing the child*, a practice that is even at this day everywhere in vogue. Now, it should be forever understood, THAT FROM THE DAY OF BIRTH ONWARD, THE TRUNK AND LIMBS OF THE CHILD SHOULD BE LEFT FREE FROM ALL RESTRAINT. For a variety of facts and observations on this point, the reader is referred to my work on "Children."

Among the *mechanical* causes of spinal curvature, that of wrong position at school, sitting, standing, or at work, is to be noticed.

Children who are placed upon seats without backs, as is sometimes done, will be very liable to become "crooked backed," especially if the practice is continued for any considerable time. Figures 98 and 99 show the right and the wrong in this respect.

Fig. 98.



CORRECT POSITION IN STUDY.

Fig. 99.



MISPOSITION IN STUDY.

Improper position at the writing desk is likewise a cause of spinal weakness and distortion. See figures 100 and 101.

Fig. 100.

Fig. 101.

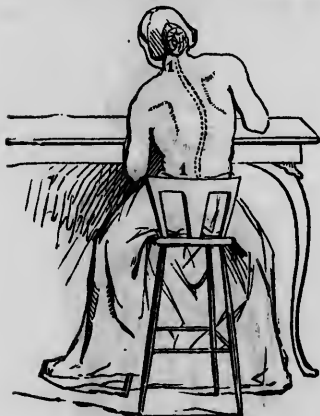


RIGHT AND WRONG POSITIONS IN WRITING.

Girls and young ladies, as well as boys, are not unfrequently injured by being confined in a wrong position, sitting at a table at work. They get fatigued, drop one arm, and thus become bent.

Fig. 102.

Fig. 103.



MISPOSITION AT WORK.



PROPER POSITION AT WORK.

Careless sitting position in general, also comes in for a share of reprobation in this connection. Fig. 104 shows the right mode of sitting, and fig. 105 the wrong one.

Fig. 104.



PROPER SITTING.

Fig. 105.



IMPROPER SITTING.

*Tight lacing*, against which too much can not be said, whether it be in the form of old-fashioned corsets and stays, or the more modern plan

Fig. 106.



UNNATURAL WAIST

Fig. 107.



NATURAL WAIST.

of tight dresses, is likewise a prominent cause of the evil in question. Many a girl has been made crooked by tight lacing, dresses, etc., when the body, if it had been left free in all its parts, would have maintained its natural state. Look, for example, at the cuts (figures 106 and 107), and then imagine if you can, proud mother, what a difference there would be in the two ways of dressing.

The spinal column is often weakened by improper positions in reading, writing, speaking, singing, etc., figures 108 and 109 serving as illustrations on this point.

Fig. 108.



IMPROPER STANDING.

Fig. 109.



BODILY UPRIGHTNESS.

But, after all, bad as these influences are in the causation of spinal diseases, we are to look yet further for the great source of those evils. True, it requires many causes to make up the great whole or sum total of spinal ailments; but the greatest one is to be looked for in the erroneous dietetic habits that almost everywhere prevail at the present day.

*Treatment.*—From what has been already observed, much will be inferred concerning the proper methods of treating spinal curvatures

A large share of the remedial process must, of course, consist in rectifying the habits generally, or, in other words, in avoiding the *causes* of the complaint. If all this is done, and that continuously, from the beginning, much may be hoped for, especially in the young and growing subject. But to cure an adult must, for obvious reasons, be a more difficult task.

The whole force of the hydropathic treatment may be safely and advantageously brought to bear in a great variety of cases of this kind. But surely no violence should be done the system, and the treatment should all along be managed according to the power of reaction, and the nature of the case. The *abreibung* is an invaluable remedy, especially in the commencement of cases of this kind. Afterward the wet pack may be ventured upon, the plunge, and finally, in most instances, the *douche*. Those, however, who treat themselves without the advice of a physician should be especially careful how they proceed.

It need hardly be urged in this place, that a girl whose spine has grown crooked, should be kept from all hard study until a full attempt at restoration has been made. Hard study and confinement within doors are among the surest means of increasing and perpetuating the mischief where it already exists.

#### TUMOR OF THE BONE—EXOSTOSIS.

This affection consists of a hard, indolent, and irregular growth of the bone, and occurs oftenest on the upper part of the humerus or the lower part of the femur. The tumor may be round and prominent, with a narrow neck, or broad and flat. An unhealthy state of the system is supposed to cause these abnormal growths. Sometimes, also, they may be traced to pressure or a blow. They sometimes disappear spontaneously.

*Treatment.*—A good deal of wet-hand friction should be practiced over and about the affected part. Subjecting the tumor to a great deal of cold is also to be recommended, especially if this can be done while the morbid growth is taking place. After it has become fully hardened, it is necessary in some cases to cut down upon the tumor and chisel it off; but great care must be taken after these operations, lest dangerous inflammation occur.

#### ACUTE INFLAMMATION OF THE BONES.

This disorder is most apt to attack children, and particularly upon the femur or the tibia. The part swells violently, and is very painful to the touch. If the inflammation is not arrested, it ends in suppuration which is very liable to cause death.



*Treatment.*—This, in the early stages of the affection, must be very active, both locally and generally. We should all along endeavor to keep down the fever and support the strength. It is probable that water treatment, properly applied, would prevent the necessity of amputation, which has often been done in these cases.

#### CHRONIC INFLAMMATION OF THE BONES.

This affection is denoted “by slow enlargement, tenderness, weight, and pain” of the bone. If it is caused by an injury it may lead to necrosis. Generally, however, it produces no other effect than chronic enlargement. When it is the result of constitutional impurity, it generally attacks several bones at the same time.

*Treatment.*—The great thing is proper attention to the general health. Wet bandages locally, and frictions are also to be resorted to. The treatment should be persisted in for a long time.

#### SOFTENING, OR FLEXIBILITY OF THE BONES—MOLLITIES OSSIUM.

This is, fortunately, a very rare disease. Old people are most subject to it. The bones become deprived of their earthy matter very much as if they had been macerated in an acid. Sometimes, also, the bone is reduced to “a mere shell, thin as a wafer, and filled with fat.” Very violent pain is apt to be experienced in the bone. The urine becomes highly impregnated with the salts of lime, taken up as we must suppose from the bony structure.

*Treatment.*—The disease hitherto has been considered as wholly incurable. If it could be taken in season, a full course of tonic treatment by water would certainly promise something.

#### BENDING OF THE BONES.

It now and then happens in cases of weakly children, that by falling or other accident the bones become bent instead of broken, and so much so as to cause a considerable deformity. The accident is most apt to happen at the fore-arm, giving it a distorted appearance; but there is not much pain.

*Treatment.*—It does not answer to bend the bone back suddenly to its place, for in so doing it will very likely be fractured. A splint should be kept upon the limb, gradually making it tighter. After some days the bone will have regained its natural shape.

#### FRAGILITY OF THE BONES—FRAGILITAS OSSIUM.

The bones in this affection are liable to break on any slight and sudden movement. Dr. Good mentions the case of a lady nearly eighty

years of age, whom he saw break both of the thigh bones, merely by kneeling down; and who, on being taken hold of to be carried away, had the upper bone (humerus) of one of the arms broken, without any violence and with little pain. With careful management the bones united in a few weeks. Dr. Gooch relates a case of fracture occurring from a violent fit of coughing. Some taint of the system, such as the syphilitic, the scrofulous, or the cancerous, is apt to be present in this affection.

*Treatment.*—The free use of mineral and vegetable acids has been recommended in this disease. It is believed, however, that a course of tonic treatment is to be preferred. The whole system should, as far as possible, be put to rights.

#### CARIES.

This term implies *ulceration* of the bone. It is most commonly caused by blows or other mechanical violence, but may also arise from a scrofulous or other taint of the system.

*Treatment.*—This should be both local and constitutional, and such as is best calculated to restore the general health.

#### NECROSIS.

This term signifies *death* or *mortification* of the bone. It must of necessity follow some inflammation of the osseous structure. The part of the bone affected becomes a foreign body, which must be separated either by the efforts of nature or art.

*Treatment.*—In these cases—which are bad enough at best—there is in surgical practice a great deal too much cutting and scraping done. Surgeons generally seem to have very little idea of the great importance of *constitutional* treatment. I do not say we should never resort to the knife and saw in these diseases; but I do say that every other rational means should have a fair trial before the system is subjected to the shock of a surgical operation.

#### EXFOLIATION.

This signifies the separation of a dead part from a living, in the form of small splinters or scales.

*Treatment.*—Exfoliation is a salutary effect of nature, and should be aided by fortifying the general health to the fullest possible extent. Local compresses are highly useful. The wet-sheet pack, rubbing wet-sheet, shallow bath, shower, plunge and douche, all come into requisition, according to the nature of the case.

## CANCER OF THE BONE—OSTEO-SARCOMA.

In some cases of fleshy cancer, and in others where there is no such disease present, the bone takes on a form at least resembling cancer in appearance. It is a very formidable disease. If the bone is amputated, it is very liable to attack the stump or some other part, and in a more violent manner than at first. The treatment should be locally and generally the same as for cancer, to which the reader is referred.

## INFLAMMATION OF THE PERIOSTEUM—PERIOSTITIS.

This generally happens on the more thinly cancered bones, and is sometimes called *nodes*. It may be caused by mechanical violence or severe cold, but is far oftener the result of syphilitic or mercurial taint. The affection is often a very painful one.

*Treatment.*—Wet compresses, stimulating or cooling, according to the case, should be used unremittingly. At the same time every effort should be made to restore the general health. The best medical advice and the most persevering treatment will be necessary.

## CLUB FOOT.

This deformity consists in a rigidity and contraction of the muscles of the leg. In its most simple variety the heel merely is raised, the patient walking upon the ball of the foot. But far oftener the deformity is much more complex; the heel is raised; the inner edge of the foot drawn upward, and the whole part twisted inward, so that the patient walks on its outer edge, and in some cases on the outer ankle. The foot, in fact, takes a variety of shapes in this affection. Thus

Fig. 110.



HORSE FOOT.

Fig. 111.



TALIPES VARUS.

surgeons speak of the *horse-shoe* deformity—*talipes equinas*, represented in figs. 110 and 112; of *talipes varus*, fig. 111; and of *talipes calcaneus*, fig. 113.

Fig. 119

Fig. 113.



TALIPES EQUINAS.



TALIPES CALCANEUS.

**Causes.**—Club foot may be congenital, *i. e.*, produced in the womb before birth, and caused probably by some defect in the mother's habits or health. It may also arise from severe fevers, injuries of the spine, division of the sciatic nerve, long confinement and inactivity, or from rheumatism or other inflammation of the muscles of the leg. Any cause or combination of causes that tend to deterioration of the constitutional integrity of the child's system, whether before or after birth, may give rise to this deformity. Debility, in short, is the great thing to be feared.

**Treatment.**—Club foot, when taken in early infancy, may often be remedied without resort to a surgical operation. The sooner the case is commenced, the better the prospect of a cure. A surgeon or surgical instrument maker should be applied to for a suitable apparatus to be worn upon the foot. There should also be daily and frequent attempts at rectifying the deformity, by extending the limb as nearly as may be to its proper shape. Wet-hand frictions, showering the part, *etc.*, should also be practiced a number of times each day, if possible.

At the same time every thing that may be should be done toward the improvement of the general health. In bad cases, however, it is best soon to resort to a surgical operation, which, if skillfully done, will often effect a cure.\*

#### WEAK ANKLES.

From a variety of causes the ankles of children often become weakened and deformed. The foot becomes flattened, its arch sunken, the heel bone forming a projection downward, rendering the internal border of the foot convex instead of concave. In some cases the inner ankle almost touches the ground, and the patient walks only with a great deal of pain and lameness.

*Causes.*—This deformity depends upon a weakness and relaxation of the bones and ligaments. It is very apt to be brought on by allowing the child to walk too soon, particularly if the joints are preternaturally weak. It is more common among girls than boys, partly, perhaps, from their greater delicacy. It is customary, likewise, among some governesses, etc., to compel young girls while yet infants, as we may say, to turn their feet outward as much as possible, as the very first step toward elegance in walking and dancing. "Thirty years ago," says a late English writer, "it was a common practice to make school girls sit for an hour every day in a kind of stocks, with their feet turned outward, so as to be almost in a straight line with each other." This practice was a very foolish one—not to say cruel—for children naturally stand with their toes turned slightly inward—a position which is the firmest, and consequently the best calculated to prevent distortion while the bones are growing.

*Treatment.*—Causing the child to maintain a proper position, avoiding excessive exercise, and showering and washing the feet and ankles often with cold water, will do a good deal in these cases. The various means of improving the general health should also be resorted to. As a valu-

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\* In *horse foot*, one of the simple forms of distortion of the foot, there is complete elevation of the heel, so that the patient in walking rests entirely on the toes—fig. 110. An experienced orthopedic surgeon, Mr. Tamplin, of England, asserts that he has never met with this kind of deformity congenital, but as a consequence of disorder of the system, and more especially of nervous irritation, such as that caused by teething, worms, etc. It may also be occasioned by wounds, ulcers of the calf of the leg, or "It may arise spontaneously, the patient experiencing no pain or inconvenience beyond the inability to bend the foot or ankle joint in the act of walking, and retaining at the same time power over all the muscles." In some cases the ligaments of the ankle joint become so weak that the patient is at length obliged to rest on the outer edge of the foot in walking.

*Prevention* is the great remedy in these cases. From the very first the general health should be attended to in the best possible manner, and the foot and whole limb should be showered daily frequently with cold water.

able mechanical aid, a well-applied bandage may be used. In some cases much advantage will be derived from the patient wearing a boot that fits pretty tightly about the ankle. It is also of advantage to have a piece of steel or whalebone fastened to the sole, and passing perpendicularly upward to the middle of the inner side of the leg. All these and other mechanical appliances may be used in connection with the local and general treatment before mentioned. Care, however, must be taken, not to depend too much upon mechanical helps, as a weak part can be effectually strengthened only by using it.

### WRY NECK.

In what is termed wry neck, there is a permanent contraction of the flexor muscles on the right or left side of the neck, drawing the head obliquely in the same direction. It may occur congenitally, from disparity in the length of the muscles opposed to each other; or from excess of muscular action on the contracted side, or from direct atony of the muscles on the yielding side. It may also arise from scalds, burns, and other injuries; from cold and inflammation or a strain, and from carrying too heavy weights upon the head. It is likewise in some instances a nervous affection. There is a case on record in which the patient was afflicted with a convulsive action of the muscles of the neck, causing this deformity whenever he was tormented with chagrin. As soon as mental tranquillity was restored, the spasmodic action ceased, allowing the deformity wholly to disappear.

*Treatment.*—When wry neck is congenital, the bones are apt to be soft or carious, in which case a tonic plan of treatment should be attempted. In some cases of the deformity, an ingenious surgeon may be of service by using mechanical appliances. Cutting the contracted muscles is likewise useful in some instances. If the attack is recent, and caused by a cold, the treatment—local and general—should be of the antiphlogistic kind. If spasmodic, a good deal of friction with wet bandages locally, and tonic treatment, generally should be the resort.

### HIP JOINT DISEASE—MORBUS COXARIUS.

The hip joint is probably more liable to become diseased than any other articular part of the system. The more usual forms of the disease are scrofulous caries of the head of the thigh bone in children, and chronic inflammation and ulceration of the cartilages in the adult. The symptoms and effects of these diseases are similar, so that practically they may be considered one and the same. It is often fatal, but not always so. In children it is particularly dangerous; but I myself

have cured one case that had been given up by eminent medical men of this city.

*Symptoms.*—In the first stage of the disease the limb appears to become lengthened; but this is only apparent. Afterward it may become spontaneously and unavoidably dislocated, and as a consequence shortened. In the beginning there is but slight pain usually; but if there is swelling or ulceration of the cartilage, it becomes one of the most excruciating kinds. It is a singular fact, that in scrofulous caries of the bone there is little or no pain. It is also singular that in hip disease generally, the pain is felt more in the knee than in the part affected; and the knee may even become swelled by sympathy. There is usually tenderness in the groin and at the back of the hip joint.

*Treatment.*—Hip joint disease, in all of its forms, is at least sometimes curable. The case should always be taken in the best possible season. It is often fatal as it is usually treated. It is a great thing certainly if we can cure a case, even with a deformed limb. The more painful form of the disease—that which attacks the cartilage—is, I conclude, more readily cured than caries of the bone.

The two important points of the treatment are, to prevent pain and support the patient's strength. The principal dependence, in allopathic surgery, is to keep the patient as nearly as possible at perfect rest, and to apply counter-irritation by means of blisters, issues, and leeching of the part. Now I should not endeavor to keep a child of my own under such circumstances at perfect rest, because I hold that such a course tends the more to weaken the system, and consequently to produce more pain in the end. All the dosing, counter-irritation, and bleeding bear no comparison, if I understand any thing of water treatment, to ablutions, spongings, the folded wet-sheet, wet compresses, etc., in quelling pain and promoting the strength. If this, then, is true, water treatment holds out much more hope in such cases than any other known mode. And suppose that a child must die of the complaint, is it not much better that he should have that kind of treat-

Fig. 114.



HIP JOINT DISEASED.

ment which will give him the most comfort, especially when it gives him also the best chance of recovery?

I can not, of course, here enter into all the details of this treatment. It must be conducted on general principles, according to the season of the year, and according to the severity of the case. If people are to treat a case without the advice of a physician who understands the new method, they must study and make sure that they understand it for themselves; otherwise they may do more harm than good.

In those cases of hip joint disease attended with ulceration, and where the ulcers open at one or more points at the groin or about the joint, as sometimes happens, it is recommended in allopathic works, as also in some of the hydropathic, to apply caustic. This I should not do in a case of my own, because such applications drive or repel morbid matter inward upon the system, which is never good or safe practice. If the ulcers can be cured at all, it is by force of nature, which no caustic can aid. Some cases doubtless can be cured without caustic which can not possibly with.

#### STIFF JOINT.—ANCHYLOSIS.

In some cases of inflammation of a joint, the lymph thrown out in the part affected becomes osseous or bony, producing what is termed *true* ankylosis. In other cases, the ligaments, cartilages, and tendons connected with the joint become rigid and paralyzed, and in some degree wasted, producing what is called *false* ankylosis.

*Treatment.*—Whenever ankylosis is likely to happen, or, rather, when there is no hope of curing the affected joint, the limb should be placed in that position which will be the most convenient. If it is the hip or knee, the limb should be a little bent, because a stiff leg is more in the way and less useful if it be left as long as the sound one. If it is the ankle, it should be bent square or at a right angle with the leg, which is a better position than to allow the foot to point downward. If it is the elbow, the fore-arm should be placed upon the breast, at a right angle with the upper arm. If the wrist is affected, it should be kept straight.

When true ankylosis has formed, there is no hope of a cure except by a surgical operation for making a false joint. But this is so hazardous a procedure, it has seldom been undertaken.

In false ankylosis something can be done in the way of friction, wet compresses, and gradual motion of the part. Many a joint has been allowed to become stiff which might have been preserved, if the proper means had been persevered in sufficiently early.



## WHITE SWELLING—HYDRARTHROS.

The term *white swelling* is used to denote chronic inflammation and enlargement of the joints, but not dropsy of these parts. The disease attacks oftenest the knee joint. It originates, according to Sir B. Brodie, in three different ways: gelatinous degeneration of the synovial membrane, ulceration of the articular cartilages, and suppuration of the heads of the bones. It is generally, if not always, a scrofulous affection. It comes upon the system in an insidious manner, and should be treated resolutely, like any other scrofulous affection, from the first. Local bandages are useful in connection with the general means. I am of the opinion that amputation, as a general thing, in this disease, only hastens the death of the patient, by sending the disease to some other part. I have seen a leg taken off for a white swelling of the knee, in which a large collection of purulent matter had formed, and in two weeks the patient died, not in consequence of the operation, but of the disease settling upon the lungs. Such operations do, I admit, cause the patient to suffer less pain in some instances, but it is not right, certainly, even to relieve pain, however severe, at the expense of shortening life.

Fig. 115.



WHITE SWELLING.

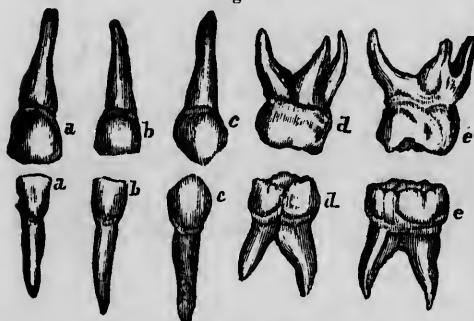
## CHAPTER XIII.

### OF THE TEETH, AND THEIR DISEASES.

THE TEETH belong properly to the bony system; but considering their importance, I have decided to give a separate chapter to the consideration of their structure and diseases.

There are in the human subject two sets of these organs: the *temporary*, *deciduous*, or *milk* teeth, which begin to appear usually about

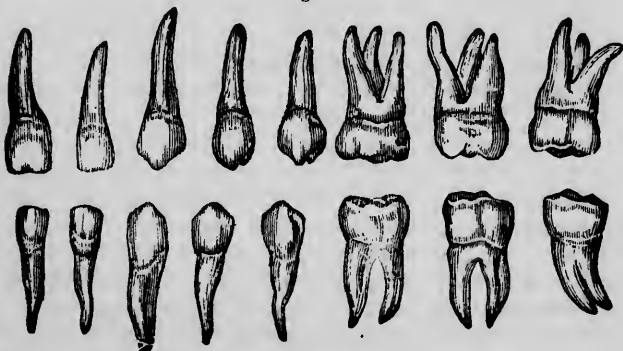
Fig. 116.



TEMPORARY TEETH.

the sixth or eighth month; and the *permanent* teeth, which appear later in life. There are twenty milk teeth, viz., *eight incisors*; *four canine*; and *eight molars*. See fig. 116. The permanent teeth are thirty-two, viz., *eight incisors*; *four canine*; *eight bicuspids*; and *twelve molars*. See fig. 117.

Fig. 117.



PERMANENT TEETH.

The appearance of the infant or milk teeth may be stated as occurring about as follows :

|  |                                 |
|--|---------------------------------|
| Two middle incisors at the 6th month.  | Canine at the 18th month.       |
| Two lateral incisors at the 8th month. | Large molars at the 24th month. |
| Small molars at the 12th month.        |                                 |

The time, however, is subject to a good deal of variation. The teeth of the lower jaw usually come forth soonest, and the healthier the child the earlier the teeth, as a general fact.

The *permanent* teeth—those of the lower jaw usually coming out first—appear in something like the following order :

|                               |  |
|-------------------------------|--|
| First molars at 6 years.      | Second bicuspsids at 10 years.           |
| Central incisors at 7 years.  | Cuspid, or eye teeth at 12 years.        |
| Lateral incisors at 7½ years. | Second molars at 14 years.               |
| First bicuspsids at 8 years.  | Wisdom, variable from 20th to 50th year. |

Fig. 118.



INFANT TEETH, AND RUDIMENTS OF THE PERMANENT.

*Teething.*—This is not *naturally* a process of disease. In the present state of things, however, children often suffer severely from it, and not unfrequently life is destroyed in this way. These, and all kindred topics, I have endeavored to explain fully in my work on “Children,” to which the reader is referred. I here simply remark that the more carefully and judiciously the child is managed *from the first*, the less will it suffer from the process of dentition, and that the morbid symptoms that are caused by the process are those of febrile

action usually, in some part or the whole of the system, in which the treatment will be tolerably obvious.

Fig. 119.



COMPLETE SET OF PERMANENT TEETH, SHOWING THEIR NERVOUS CONNECTIONS.

*Cutting the Gums of Infants.*—It is customary with many physicians always to carry a gum lancet with them, so that when they find

Fig. 120.



CUTTING THE GUMS OF AN INFANT.

any thing the matter with a child that is teething, in goes the instrument upon one or more of the teeth that are about to protrude. Now, it is natural for a physician to want to *do something* when called to a child; and, besides, it is an inbred notion among people that the doctor must do something that hurts, or give something that nauseates and disgusts. Hence this practice of cutting the gums. And there are physicians, too, who honestly believe that it saves

life often, and who would do it just as soon upon a child of their own as upon that of another. My own opinion is, that cutting the gums does neither much good nor harm. I have often done it at the solici-

tation of parents, knowing that it causes little pain if skillfully done, and that it can do no material harm. But I can not say that I have ever known it to do any good. Certainly, the operation seems to have no power over convulsions, as some have supposed. There is one thing which should also here be observed. Suppose the wound heals before the tooth protrudes. It is supposed by many physicians, as well as the people, that it is more difficult for the tooth to make its way through a cicatrix. But this is a mistake; nature can never mend a part so strong as it was before.

If cutting the gums of a child is decided upon, the parent, if he is resolute, may perform the operation perfectly well. Fig. 120 represents the method by the common gum lancet. A very sharp penknife will, however, answer the purpose. The sharper the instrument, always the better. The incision should be made freely down to the tooth.

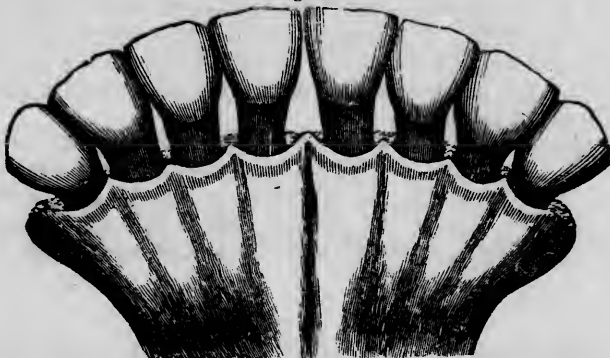
#### DISEASES OF THE TEETH.

Notwithstanding the teeth are covered with a firm, hard enamel, which is the firmest and hardest structure in the living body, they are yet subject to various diseases and to decay. Often, even before the child has arrived at the age of five years, it loses a great part of its teeth. This is evidently not the order of nature; we do not see it among animals unless when they are improperly treated by man, nor in the human species when the laws of life and health are properly observed. The aborigines of our country, according to Dr. Rush, were, in their natural state, total strangers to "diseases and pain of these organs." But people in general have no idea that the dietetic and other voluntary habits have any thing to do with the health of the teeth. It is forgotten, if at all understood, that these important parts of the bony system have nerves, blood-vessels, etc., like all the other parts; and that the health of any one part must necessarily depend, in a great degree, upon the healthfulness of the system generally.

One of the most prolific among all the causes of decay in the teeth, is that of taking the food and drink too hot. The sudden expansion and contraction of the tooth thus caused, often cracks the enamel, rendering the substance of the tooth much more liable to the action of foreign agents. To render this fact the more striking, the late John Burdell, an eminent dentist of this city, gave an illustration of the jaw of a healthy cow, fed on natural food (see fig. 121), and also another (see fig. 122) of the jaw of an animal of about the same age that had been fed on hot "still slops," in this city. In the second specimen the enamel of the teeth is not only quite destroyed, but the bony part also

has naturally suffered. The black spots represent caries (rotting of the teeth), and the alveolar processes have taken part in the disease. Ulcers have formed at the roots of some of the teeth, and the portion

Fig. 121.



TEETH OF A COW FED ON NATURAL FOOD.

of bone opposite these roots has been affected and broken off, and one of the teeth is wholly gone. The interstices between the teeth were filled with tartar, which was removed before the drawing was made.

Fig. 122.



TEETH OF A COW FED ON ARTIFICIAL FOOD.

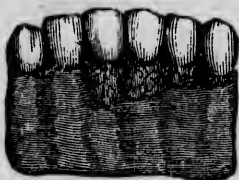
Mr. Burdell found that all of the animals which had been for any considerable time kept in this way, had their teeth more or less affected.

The practical lesson to be drawn from these important facts is this: neither the young nor the old should ever take food or drink that is above 98° Fahr., or blood heat. And generally, after the child is weaned, it would be still better if the aliment were of the temperature of the air we breathe. Nor should any violence be done by taking very cold articles into the mouth. Avoid all extremes, is the only safe rule

## TARTAR UPON THE TEETH.

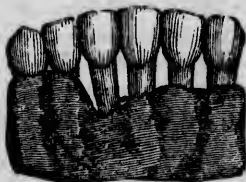
In consequence of drinking hard, limy water, and of neglecting the proper cleansing of the teeth, they often become incrusted in what is termed *tartar*. This is not only destructive to the gums, but leads to early decay of the teeth. A skillful dentist should be employed to remove it as soon as it is observed. This being accomplished, the individual should spare no pains in daily cleansing the teeth, for the important purpose of keeping off this accumulation which is productive of such ill results:

Fig. 123.



TARTAR ON FOUR TEETH.

Fig. 124.

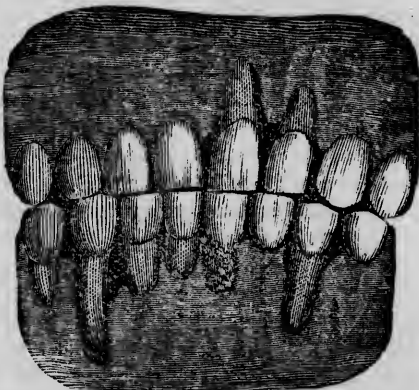


TARTAR REMOVED.

Fig. 123 represents six teeth, four of which are affected by tartar. Fig. 124 represents the same teeth with the tartar removed. There is no known means of causing the parts to become again healthy. All that can be done is to arrest the disease. Teeth that are perfectly sound often fall out, the tartar destroying the gum and alveolar process, leaving nothing to hold them in place.

Mr. Burdell gives the following representation of a portion of the teeth and gums in a healthy condition, and one with tartar on it; while the others show the jaw and gum to be entirely off the front part of the roots. The first cause of this defect might have been tartar, and afterward by using a stiff brush, with improper tooth-powder, that was accomplished which the tartar had left undone

Fig. 125.



ROOTS EXPOSED FROM VARIOUS CAUSES.

## CARIES.

This is the most common form of dental disease. Its causes are as numerous as the sources of ill health generally.

*Prevention and Cure.*—I recommend, in strong terms, that all who can avail themselves of the services of a skillful, honest dentist—one who not only knows *what* to do, but who will *do* it. There is much room for dishonesty in the dental art, much temptation to deceive. There are probably a greater proportion of ignorant pretenders in this than any other department of medical science. But dentistry, rightly practiced, is one of the most useful of all the arts. Properly cleansing, excavating, and plugging the tooth is the great remedy for caries, for which the dentist must of course be consulted.

*Tooth-powders and Washes.*—Villainous quacks have invented a great variety of powders and washes wherewith to cheat people. Most of these applications serve to whiten the teeth through the effect of an acid which acts upon the lime of the enamel, destroying a portion of it each time the article is applied. If this process is kept up for any considerable time the enamel is destroyed, after which the tooth soon decays, and becomes dark colored.

A tooth-powder should act only by its mechanical property, and it should be as fine as possible, so as not to wear away the enamel of the tooth. Finely pounded charcoal is one of the best of tooth-powders; we may also rub a wet brush upon a piece of charcoal, and with it cleanse the teeth. Mild soap and water are also excellent. The teeth ought by rights to be cleansed after every meal.

*Toothpicks.*—These are useful instruments when of the right kind. The common quill is perhaps the best. Wooden picks are also excellent, and in some of the countries of Europe it is considered no mark of ungentility to pick the teeth at table after eating. Indeed, the picks are placed upon the table for that very purpose, and shiploads of them are imported as matters of merchandise. Metallic picks are objectionable on the ground of wearing the teeth. A very fine gold pick, however, could hardly do harm unless it was too much used.

Some eminent dentists have recommended cleansing the interstices of the teeth by drawing a silk or linen thread between them.

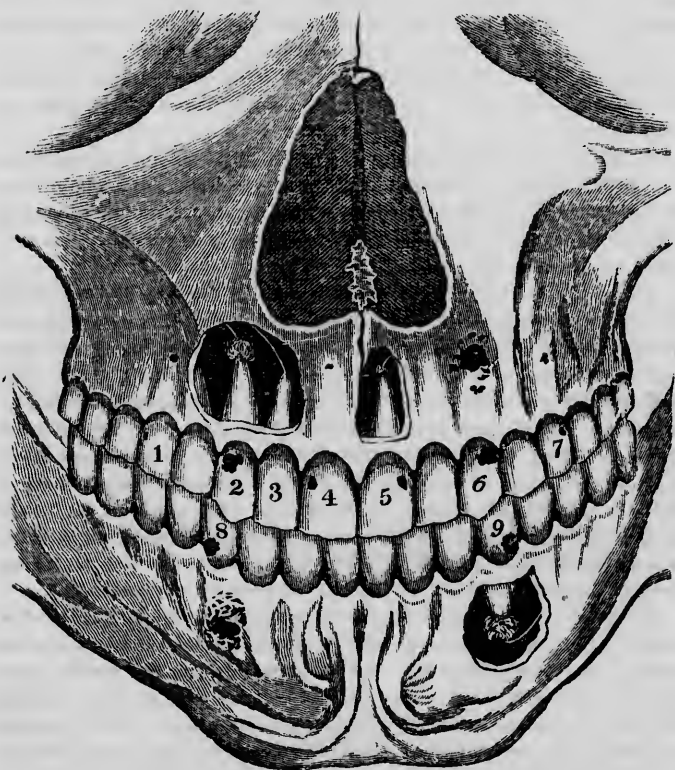
In regard to caries, as also all other diseases of the dental organs, it should ever be remembered, that the teeth, as well as all other parts of the system, have, through their blood-vessels and nerves, nutrition and growth; and that as a consequence of this physiological fact, *the state of the stomach, the food taken, and the condition of the general health* have a vast deal to do with their health.



## ULCERATION OF THE FANGS.

Is also one of the ills which teeth are heir to. The sack finally breaks, the matter making its way out through the jaw or alveolar processes. A great amount of pain and suffering are often experienced in cases of this kind.

Fig. 126.



DISEASED TEETH.

Fig. 126 represents the jaws with several of the teeth in a diseased state, as they are situated in the maxillary bones. The soft parts have been removed in order to exhibit more plainly the parts affected. All of the teeth numbered, except No. 3, are carious, the disease having penetrated to the nerve. Nos. 1, 4, and 7 show the jaw and teeth in an early stage of disease. Nos. 6 and 9 are ulcerated at the roots. No. 9 shows part of the alveoli removed to expose the ulcer at the root of the tooth. Nos. 8 and 2 are also similarly affected. From No. 5 the face has been removed, to show the ulcer in an early stage.

## TOOTHACHE—ODONTALGIA.

One of the most striking ways in which the Creator, through his laws, punishes human beings for their physical wrong-doing, is by that painful malady—toothache. How many a long and weary day and night have people suffered in this way, all for their own or their progenitors' sins. Now, I hold it as doing no irreverence to the Deity to speak in this way, for do we not all of us—whatever be our religious faith—act upon the principle that *we* as well as the Creator have something to do? If not, why do we use creasote, opium, cold water, or why extract a tooth? The truth is, *we suffer because we violate a natural law.*

Toothache, in many cases, is one of the most painful of maladies. It arises from an inflammation of the nerve within the tooth, from an inflammation of the periosteum of the fangs, or from an inflammation of the socket. The reason why toothache is so painful, is the confined condition of the parts.

*Prevention.*—A great deal may be done in the way of keeping off this troublesome malady. It is plain enough that if a man will persist in the use of tea, coffee, spices, and highly stimulating and concentrated forms of food, his body generally will be in a much more inflammable condition than if he lives upon plain, simple, unstimulating fare. Some who have suffered a great deal from aching teeth have completely mastered the difficulty, simply by giving proper attention to diet, after keeping up the course sufficiently long to have it make a considerable change in the system. Of course it can not be done in a day. Such a measure, too, I have known, not only to arrest aching of the teeth, but actually the decay itself. A vast deal more depends upon these *small* matters than is generally dreamed of.

*Treatment.*—Priessnitz's method of managing toothache exhibited no small tact: Tepid water was held in the mouth until it began to grow warm, when it was changed. At the same time the face, cheeks, neck, and parts behind the ears were rubbed smartly with the hands dipped frequently in very cold water. Sometimes, also, the gums were rubbed till they bled pretty freely. Cold, shallow foot-baths were added, if necessary. This simple treatment will in most cases succeed, if the pain arises from the nerve simply, and is not accompanied with ague and swelling of the face. Cold water, taken frequently into the mouth, will often prevent the pain; but in some cases it makes it worse. Tepid water *in* the mouth and cold *outside* is the preferable mode. A general bath is often highly useful.

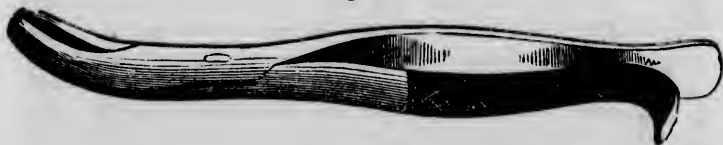
Those who are tolerably well used to cold water can hardly go amiss

in these cases. A douche, plunge, wet pack, sitting-bath, and walking thinly clad in the open air, if it is cool, are all useful. It would be better to sleep in a folded wet sheet, or an entire pack—the body being not too closely wrapped—all night, rather than suffer as we sometimes do with the pain of diseased teeth.

In all common cases—such as when there is no swelling or ague—twenty-four hours' entire fasting, taking only now and then a little pure water, is sure to cure the ache. Those who have the courage may prove the truth of what I assert.

*Extraction of Teeth.*—One of the most striking evidences of man's physical degeneration, I have said, is the early decay and pains of his teeth. Scarcely one in a hundred reaches the age of twenty without losing some of these useful organs, suffering at the same time a vast amount of pain in the way of toothache. That man brings these evils upon himself is provable by the fact that those who are reared prop-

Fig. 127.



MOLAR FORCEPS.

Fig. 128.



COMMON INCISOR FORCEPS.

Fig. 129.



POINTED FORCEPS FOR EXTRACTING FANGS.

erly from childhood, and observe uniformly a correct physiological course in the dietetic and other hygienic habits, are much less liable to the evils in question. The lower animals in their natural state we know enjoy an immunity from suffering in this way, but if we treat

them in an artificial and unnatural manner, a different state of things very soon obtains. Thus cows that are closely confined and fed upon hot distillery food, lose their teeth in a few months, or at most years. This is a fact well worth remembering, and should be deeply pondered by all who desire that greatest of all earthly blessings, health.

In consequence of decay and aching, it is often considered necessary to extract the teeth. The operation is usually performed by a medical man or dentist; but there are circumstances in which it is advisable for non-professional persons to have some knowledge of the art.

Before proceeding to extract a tooth, it has been customary to separate the gum about the part. With many the practice is now discontinued, it being considered by such altogether unnecessary. If, however, it is resolved upon to divide the gum, the instrument called the gum lancet is a suitable one to use; but a sharp penknife will answer in most cases perfectly well.

Fig. 130. In extracting the *front* and *eye* teeth, the forceps is the only suitable instrument to be used. This is represented in fig. 130. One of the blades is placed in front and the other behind the tooth, and their points must be crowded sufficiently under the gum to cause the instrument to take a firm hold upon it, otherwise it will slip off and make trouble. The pressure should be made firmly, but not so much as to crush the tooth. In one way or another the patient's head should be supported while the force is applied. If an upper



FORCEPS.

Fig. 131.

tooth is being drawn, the patient's head may be taken beneath the operator's left arm; or if it is a lower tooth, the head may be steadied in a similar way, but with the thumb of the left hand pressing downward upon the sound tooth, while the extracting force is made in an upward direction. In drawing an upper tooth, it is also advisable in many cases to make pressure upward with the thumb of the left hand, as represented in fig. 131.

Extraction of the double teeth is a far more difficult operation than the preceding. A great variety of instruments have been invented in modern times for this purpose. By dentists, and those who are skillful in the art, forceps are usually preferred. The old-fashioned turn-key, however, is more frequently used. This instrument is too well known to need any particular description, and is represented in fig. 132.

In using the turn-key, it was formerly the practice to cover the bol-



ster, or fulcrum, with a fold of handkerchief, napkin, or piece of leather, or Indian rubber, to prevent bruising the gum. This is now given up by many operators, supposing that the gum fares better if the steel is left wholly uncovered. Be this as it may, the operation is a cruel one, making the best of it.

If it is a lower tooth that is to be drawn, it is customary to place the patient in a common chair; or if it is at the dentist's, in the chair which he uses for general purposes of operating. The mouth should be held well open. If it is an upper tooth that is to be drawn, the operator can do better if he set the patient flat upon the floor, at the same time causing him to hold his head well back.



TURN-KEY.

In arranging the instrument, care must be taken not to get hold of the wrong tooth—a blunder which has often been made. It is hard enough to have to lose a bad tooth; but to lose a sound one is really a serious mishap. The key, then, is introduced with its claw thrown back; the fulcrum is placed against the gum, either on the inside or outside, as the operator determines best; the claw is then turned across the top of the tooth, and made to drop just under the gum, so that it holds upon the neck of the part.

Fig. 133.

The claw of the instrument is then steadied with the forefinger of the left hand, while the handle of the instrument is grasped with the right hand, when it is turned steadily and firmly inward or outward, as the case may be, until the tooth is brought out of its socket.



DRAWING A TOOTH.

Great care should be observed in the commencement of making the extracting force, lest the hook slip off the diseased tooth and fix itself upon a sound one—an accident which has sometimes occurred. The manner in which this whole operation should be performed is very well represented in fig. 133.

To extract the stumps and fangs of teeth a greater degree of skill is necessary, and a greater variety of instruments than in either of the foregoing operations. Those only who have experience in this department of dental surgery will, in general, undertake it. A detailed description of these processes would, therefore, in the present instance, be out of place.

Should the teeth be extracted? Certainly a great amount of pain may often be prevented by so doing; pain at least for the time. But I frankly admit that it would require some great emergency, or some real necessity, that would lead me to submit to this painful operation.

If old stumps were in the way of inserting artificial teeth, which could be made really useful, as is often the case, I might submit to it. But for pain alone, I would not. *Teeth were not made to be extracted.*

In extracting the teeth of children, that is, the milk teeth, parents often succeed by placing a noose made of strong twine or thread about the tooth. Whatever means is adopted with these first or temporary teeth, the extraction should be performed sufficiently early; otherwise the second tooth may be crowded out of its place by the presence of the first one. This is a matter of great importance to the child, and parents who do not well understand the matter should make sure to consult the family dentist or physician sufficiently early.\*

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\* According to the "Liberia Herald," every man in Africa is his own dentist. When a person wishes to get rid of a bad tooth, it is brought about in the following manner. A fine, strong cord is made of the fibers of the palm leaf—one end of which is fastened securely round the deficient tooth. To the other end is tied a stone, weighing from eight to ten pounds—which is lifted up at arm's length and then let fall. The troublesome member is out in a twinkling—much quicker, at all events, than it could be extracted by any instrument in civilized hands—and that is the end of the operation.

## CHAPTER XIV.

### DROPSY AND OBESITY.

#### DROPSY—HYDROPS.

DROPSY consists in “a pale and inelastic distention of the body and its members, from accumulation of a watery fluid in natural cavities.” The disease may be either cellular, or it may affect the head, spine, chest, belly, ovary, Fallopian tube, womb, or scrotum.

#### CELLULAR DROPSY.

This is characterized by “a cold and diffusive intumescence of the skin, pitting beneath the pressure of the fingers.” There are, according to Dr. Good, three varieties of this species of the disease: *general dropsy—anasarca*—which extends through the cellular membrane of the body; *œdema*, limited to the swelling of the limbs, chiefly of the feet and ankles, and mostly appearing in the evening; and *dyspnetic dropsy*, consisting of edematous swelling of the feet, stiffness and numbness of the joints; the swelling rapidly extending to the belly, with some and mostly fatal dyspnœa.

Ordinarily, before dropsy becomes general, it shows itself in the lower limbs, and before death, in fatal cases; the respiration is peculiarly difficult, forming one of the most distressing symptoms of the disease.

*Causes.*—Debility is the great predisposing cause of this form of the disorder. Spirituous liquors, fevers of various kinds, severe exposure to cold, loss of blood, and other severe discharges, gout, cancer, scrofula, and disease of some internal organ, seem to induce it.

Some years ago it was customary among objectors to water treatment in England to assert that the method is liable to cause dropsy, and the same slander was reiterated to some extent on this side of the Atlantic. The thing, however, has gone by at the present time; and it is to be specially noted that among all the standard authors of allopathic medicine, there is not one who attributes any such result to water; but, on the contrary, mercury, colchicum, and even squills and cream of tartar, are accused of producing the disease.

It should then be understood that drug medicaments have often

induced this formidable disease. Spirit-drinking stands first, and drug medication second, in the category of the causes of dropsical diseases.

*Symptoms, Characters, etc.*—Dr. Good observes: "The disease is common to all ages, though most frequently found in advanced life; the œdema of the feet and ankles, with which symptom it opens, appears at first only in the evening, and yields to the recumbent position of the night. By degrees it becomes more permanent, and ascends higher, till not only the thighs and hips, but the body at large is affected, the face and eyelids are surcharged and bloated, and the complexion, instead of the ruddy hue of health, is sallow and waxy. A general inactivity pervades all the organs, and consequently all the respective functions. The pulse is slow, often oppressed, and always inelastic; the bowels are costive, the urine for the most part small in quantity, and consequently of a deeper hue than usual; the respiration is troublesome and wheezy, and accompanied with a cough that brings up a little delicate mucus, which affords no relief to the sense of weight and oppression. The appetite fails, the muscles become weak and flaccid, and the general frame emaciated. Exertion of every kind is a fatigue, and the mind partaking of the habitude of the body, engages in study with reluctance, and is overpowered with drowsiness and stupor." An unquenchable thirst and a sort of perpetual fever often attends the disease.

*Treatment.*—Cellular dropsy being the result of debility, the first indication of treatment is to restore the general strength. A tonic course of treatment will of itself often remove the disease, and this in a comparatively short time. Whatever promotes the tone and vigor of the system generally, must have the effect of not only causing the absorption of the effused fluid, but of preventing its reaccumulation. As a general thing, the water used should be cold, but the applications should not be so long continued as to over-chill the system. A good share of friction is advisable on the ground of stimulating the excretory organs generally. The rubbing wet-sheet, well wrung, and followed by a thorough rubbing over the dry sheet, is a valuable remedy. The skin should be preserved as much as may be, and hence it is better that the friction (which should be often and freely made) should be with the wet hand or over the sheet. Moderate showering and douching are also valuable aids in case the debility is not so great as to preclude the employment of these remedies. The diet should be very spare, and of an unstimulating kind.

One method of removing the fluid in dropsy of the lower limbs is that of making minute punctures in the skin with a needle. "By



making minute punctures in the skin," observes Dr. Elliotson, "an immense quantity of water may be drawn away. There is no occasion to introduce the needle deeply; we have simply to put it through the skin, by rotating it between the finger and the thumb; and when it is withdrawn, a bead of clear serum will appear; and the oozing will perhaps continue for some time." Twenty or thirty punctures are sometimes made in this way; but it should be remembered that dangerous results may follow even so trifling an operation as puncturing the skin appears to be. "Although these punctures made with a needle are very minute, and the aperture is merely through the skin," says Dr. Elliotson, "patients have lost their lives through them; gangrene has taken place even through this slight operation, but in every case of this description that has come to my knowledge, the apertures had been made *below* the knee." It would seem, then, to be a rule that scarifications, punctures, etc., in dropsy, should be made always above the knee. The practice seems to be perfectly safe under this rule; and it has been extensively resorted to upon the chest, abdomen, and thighs, and apparently without harm.\*

Dr. Baynard, one hundred and fifty years ago, in his usually quaint and humorous style, speaks of the effects of cold water taken internally as a cure for dropsy, as follows:

"Sir Thomas Witherby, when he was president of the College of Physicians, London, was pleased to entertain some of the Fellows of the Board with the following most surprising story of an hydropical cure. That water should expel water, and that a drowned man should be brought to life by being more drowned, is a miracle beyond any of St. Winifred's.

"A certain wine-cooper, that had been a free liver, fell into a jaundice, thence, as the usual stage is, into a dropsy, the *ascites*; he applied for help to Sir Thomas Witherby, then physician to King Charles II.,

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\* Dr. Good, in speaking of the different plans of treating dropsy, remarks: "It should never be forgotten, however, that dropsy is a disease of debility, and that the plan of evacuating will rarely of itself effect a cure; and never, perhaps, except in recent cases, and when little inroad has been made upon the constitution. In all other cases it should be regarded as a preparatory step alone, a mere palliative, and an evil in itself; though an evil of a less kind to surmount an evil of a greater. And it is for want of due attention to this fact, that the plan of evacuating, and particularly by drastic purgatives, has, by many practitioners, been carried to a dangerous and even a fatal extreme. Every purgative that does not diminish the general bulk adds to the general disease, by increasing the general debility: and if upon a few trials, the plan be not found to answer the salutary purpose, it can not too soon be desisted from.

"The radical cure must, after all, depend upon invigorating the constitution, or restoring the organs particularly affected to a healthy state; for even a total removal of the water affords only a palliative and present relief."

who, as he said, treated him in all the usual methods practicable in such cases, but nothing would do: he made little urine, grew drowsy and asthmatical, insomuch that he grew weary of his patient, foreseeing that he would soon die. He desired some near friend to pronounce sentence, for a physician should never do it himself; for those who are *adjutores vitæ* should not be *muncii mortis*. In short, this man was prodigiously swelled—belly, back, sides, thighs, and legs. Thus being past all hopes, and forsaken by his physician, and given over by his friends, he desired his wife to let him die at Sadler's Wells, at Islington, to which she consented; and when there he told her, in that he had always been a kind and loving husband to her, that she would grant him one request, which was, that having on him an inextinguishable thirst, she would let him drink his fill of those waters, and then that he should go out of this world well satisfied that she truly loved him; and if she denied him, he would die a miserable man, both in mind and body. She seeing him so resolved and bent upon it, and considering all other means failed, consented: and, to the best of my remembrance, Sir Thomas told us, that from between four in the afternoon and nine or ten at night, he drank fourteen quarts of water, and all that time made not one drop of urine; he sank down in the chair wherein he sate, dead as they all thought, in a cold, clammy sweat; thence being laid on the bed, in half an hour's time they heard something make a small rattling noise, like a coach on a distant gravel-way, and soon after he began to pass his water, and passed in an hour's time about seven or eight quarts, and had also, from the weight of the water, two or three stools; he began to speak, and desired a little warm suck, which they gave him. He fell into a profound sleep, in which he both sweat and dribbled his urine all that night. The next day he drank, by degrees, about four or five quarts of water more, and had two stools more, thin and waterish, but still discharged his water, and drank on more or less, for five or six days together, taking all that while nothing for food but thin mutton broth, and sometimes a little suck, and so recovered. Now, no man upon earth, in his senses, would have prescribed such a water course to cure a dropsy; which shows how little we know of nature, and the great uncertainty of art."

#### HYDROCEPHALUS.

*Hydrocephalus, hydrops capitis, dropsy of the head, dropsy of the brain, or water in the head*, is a disease that belongs mostly to childhood, although in a few instances it has been known to commence in adult age. It is both external and internal; the former when the fluid collects in the ventricles or convolutions, or between the membranes of

the brain; the latter, when the substance of the brain itself becomes the seat of the disease, leading often to suppuration and effusion.

Hydrops capitis is often found at birth, the head of the child being so much enlarged by it as to prove a serious hindrance to the delivery. As many as four pounds of water have been evacuated from the head of a child after its birth. In other cases the disease does not commence till some months, or, perhaps, two or three years after the child has been born.

It is a singular fact that this disease, in some cases, even when of a very formidable aspect, does not appear to shorten life. Dr. Good quotes from Dr. Heberden the history of a patient, who, with about eight ounces of water in the ventricles of the brain, as appeared on opening him, and which there was good reason for believing had existed there for many years, and with scarcely an organ free from disease in his whole body, with the exception of the brain itself, which was found healthy in its substance, was enabled to attain the good old age of upward of four-score years, with an apparently sound constitution, and free from all the usual infirmities of advancing years, saving the inconvenience of an habitual deafness.

Fig. 134 represents a remarkable case of hydrocephalus. The subject, a man, died at Guy's Hospital, London, when nearly thirty years of age. At nineteen his head measured thirty-three inches in circumference; twenty-four and a half from one ear to the other, and twenty-three and a half from the root of the nose to the nape of the neck. His head after death contained ten pints of water, nine pints lying between the dura mater and the brain, while one pint was contained in the ventricles; the convolutions of the left portion of the brain were in a natural state, but on the right side some of them were unfolded, and the posterior lobes were much distended, but the brain was confined by the weight of water in the bottom of the skull; his whole brain weighed two pounds fourteen and a half ounces; he manifested the feelings and intellectual faculties, and could read and write.

Gall and Spurzheim mention a woman whose brain contained four pounds of water, who manifested the common share of understanding. They also refer to the case of a man of considerable learning, whose cerebral cavities contained from three to four pounds of dropsical fluid. At Copenhagen, a girl, whose head measured twenty-five inches in circumference, and nineteen inches from the root of the nose to the neck, and must have contained over eighteen pounds of water, made as much progress at school as ordinary scholars. Dr. Tobias, of Leipsic, gives a case in which the head was of extraordinary size, in which the person possessed common understanding, but lost it entirely in a fit of

Fig. 184.



DROPSY IN THE HEAD.

Fig. 185



NATURAL HEAD.

passion, in consequence probably of the membranes becoming ruptured by the excitement.

*Causes.*—When hydrops capitis occurs in adults, the cause or causes of the disease must be such as are calculated to produce dropsy generally. But it more frequently happens in children, and then the case may be different. Doubtless the improper dietetic and other habits in which child-bearing women are so apt to indulge, have much influence in the matter, and, indeed, often induce the disease.

*Treatment.*—With regard to the effect of drugs in hydrocephalus, I must again quote that able and

candid author, Dr. Good, who always spoke his honest conviction, whatever it might be. He observes: "Drastic purges can rarely in this form of the disease be carried to such an extent as to be of essential service, on account of the early period of life in which it commonly shows itself. For the same reason diaphoretics have not been generally recommended, or often proved serviceable when ventured upon. Diuretics have been more frequently had recourse to, and particularly the digitalis. Dr. Withering was favorable to its use, but it has commonly, as in other forms of dropsy, proved more injurious than beneficial."

It is a most important consideration to commence the treatment as early as possible in these cases, and the general management should be the same as for cellular dropsy. Washing the head often with cold water, and the pouring head-bath, are useful in connection with the general treatment.

In a few instances, dropsy of the head has been cured by carefully drawing the water off little by little from the part. If such an operation should be contemplated, the best medical and surgical advice should of course be sought.

#### DROPSY OF THE SPINE—SPINA BIFIDA

This disease is called *spina bifida*, from the double channel which is often produced by it through a considerable length of the vertebral column: a natural channel for the spinal marrow, and a morbid channel running in a parallel line, and equally descending from the brain, and filled with the fluid which constitutes the disease. It is mostly congenital, and consequently a disease of fetal life. The affection is known by a "soft, fluctuating exuberance on the spine, with gaping vertebræ." It is mostly fatal, although a few cases have recovered, either spontaneously or by opening the tumor and drawing off the fluid.

#### DROPSY OF THE CHEST—HYDROPS THORACIS—HYDROTHORAX.

Hydrothorax is characterized by "a sense of oppression in the chest, dyspnœa on exertion or decumbiture, livid countenance, urine red and spare, pulse irregular, edematous extremities, palpitations and startings during sleep." The disease appears of little consequence in the beginning, and its course is for a time almost or quite imperceptible; but at length the breathing becomes oppressed, a slow fever lingers about the system, and the whole train of symptoms belonging to the complaint declare themselves. "The difficulty of breathing becomes peculiarly distressing, and the patient can obtain no rest but in an

erect posture, while even in this condition he often starts suddenly in his sleep, calls vehemently for the windows to be opened, and feels in danger of suffocation. His eyes stare about in great anxiety, the livid hue of his cheeks is intermixed with a deadly paleness, his pulse is weak and irregular, and as soon as the constrictive spasm of the chest is over, he relapses into a state of drowsiness and insensibility."

Dropsy of the chest is mostly to be found among persons of advanced years. It is often suddenly fatal, cutting the patient off by spasms, which may come on either while he is awake or asleep. In other cases, where the constitution is strong, the disease may last for a series of years. It is often connected with organic disease of the heart. Its causes are the same as those of dropsy generally.

*Treatment.*—Hydrothorax is to be treated on the same general principles as cellular dropsy, and as a last resort, when all other means have failed, tapping the chest is sometimes resorted to. This is, of course, the business of none but the most experienced surgeons. The operation has been successful in some cases. In some instances spontaneous cures have taken place, the treatment being so slight as not to merit notice.

#### DROPSY OF THE BELLY—HYDROPS ABDOMINIS.

This disease, called also *ascites*, includes three species: the *atonic*, preceded by general debility of the constitution; the *parabysmic*, preceded by or accompanied with some affection of one or more of the abdominal organs; and the *metastatic*, arising from repelled gout, rheumatism, or some skin disease. The fluid in dropsy of the belly is contained either in the affected organ, which becomes enlarged, in the omentum, or in the cavity of the abdomen. In the latter case it is more easy to draw off the fluid than in either of the former.

It should be remarked in this connection that *pregnancy* has often been purposely guised under the pretense of dropsy. In some cases also where pregnancy has been ardently longed for, and has actually taken place, it has been mistaken for ascites. In some instances, likewise, the two have occurred together, not only once, but a second time, in the same person. Pregnancy is indeed difficult of detection in some of these cases, and the ablest and most experienced practitioners have made mistakes concerning them which are well enough calculated to put science to the blush. An instance of the kind happened not long since in this city. A lady who had either never, or not for many years, been pregnant, was attended by two of the most celebrated practitioners of this city, for several months, for a swelling of the abdomen which they decided to be an ovarian tumor. They could of course

give the patient and her husband next to no hope at all in the case. One of the practitioners was in the habit of visiting the patient more particularly, and, with the best of intentions, frequently introduced his hand into the vagina for the purpose of "crowding up the tumor," as he called it. It happened, however, after a time, that the good doctor was called up of a morning earlier than usual, by the patient's husband, who informed him that his wife was in great agony, and that he supposed her end to be very near. The doctor, thinking that he could be of no real service, did not seem to be in a hurry, but said that he would make this his first call. So, when he arrived at the patient's house, behold she was already delivered of a fine male child ! The *tumor* had vanished.

Dr. Good gives a case of a similar kind, in which, however, the doctors did far worse than merely to "crowd up the tumor." "The patient was attended," observes Dr. Good, "by three or four of the most celebrated physicians of London, one of whom was a practitioner of midwifery, and concurred with the rest in affirming that her disease was an encysted dropsy of the abdomen. She was, in consequence, put under a very active series of different evacuants; a fresh plan being had recourse to as soon as the preceding had failed; and was successively purged, blistered, salivated, treated with powerful diuretics and the warm-bath, but to no purpose; for the swelling still increased and became firmer, the face and general form were emaciated, the breathing was laborious, the discharge of urine small, and the appetite intractable, till at length these threatening symptoms were followed by a succession of sudden and excruciating pains, that by the domestics, who were not prepared for their appearance, were supposed to be the forerunners of a speedy dissolution, but which fortunately terminated before the arrival of a single medical attendant, in giving birth to an infant that, like its mother, had wonderfully withstood the whole of the preceding medical warfare without injury."

Those who know, or who have reason to believe, that they have dropsy of the abdomen, should never lay themselves liable to become pregnant, for should they survive and bring forth a child under such circumstances, it could hardly fail of being a curse to itself and others, and the combination is a most distressing one for the patient. Surely a fetus fills the abdomen sufficiently, as every woman who has had experience can testify; and to add to this a dropsical tumor, lays her liable not only to great discomfort, but to actual suffocation.

*Treatment.*—Some cases of hydrops abdominis can be cured by the plan recommended under the head of cellular dropsy. In other instances, it is often advisable, as a palliative means, to draw off the

fluid by tapping. This does not, of course, cure the patient, but it puts her or him in a better condition for being helped. They should be prepared for the operation by a course of gentle water treatment and unstimulating diet, and there will be little danger of the inflammation which some practitioners so much fear.

#### OVARIAN DROPSY.

In this affection there is "heavy intumescence of the iliac region of one or both sides, gradually spreading over the body, with obscure fluctuation." Ovarian dropsy is said to be always of the encysted character. Its causes are the same as those of the other forms of dropsy in the abdomen.

Dr. Elliotson has collected some singular facts in regard to the amount of fluid that may be generated in this disease. "I once saw an old woman," he observes, "who had the disease many years, and never would be tapped. At last a certain quantity of water was let out; and we found it amounted to eighty-four pints. The diaphragm had been pushed up to the fourth rib; the chest was exceedingly small, but the size of the abdomen was immense. That, however, was nothing to what other people have seen. M. Chevalier says, that he once saw one hundred and thirty-six pints removed; all of which must have existed at once. The case is mentioned in the third volume of the 'Medico-Chirurgical Transactions.' It was drawn off at three or four times. The health, in these instances, is not affected as it is in dropsy of the peritoneum; so that a woman at Paris lived to be tapped three hundred times. Another woman was tapped one hundred and fifty-four times. In the course of that period she had three children; and was tapped two or three times during each pregnancy, so that she lost no time, but went on bearing children and water too. At least twenty pints were removed at each time; and she was tapped, at various periods, during twenty years. There is another case recorded, where six thousand six hundred and thirty-one pints were taken away. It was not all removed at once; but was drawn off at eighty operations, performed in the course of twenty-five years—so long do women sometimes live in this affection. I suppose they kept a very accurate account. In one year this woman had four hundred and ninety-four pints taken away. The case is mentioned by Pr. Mortimer, in the 'Philosophical Transactions.'

"There is an account, by a celebrated French surgeon, of a case where four hundred and twenty-seven pints were taken away in ten months. The case is mentioned by Mr. Carruthers, in his work on inflammation, where a woman was tapped nineteen times in three



years. A German author mentions an instance where a person was tapped one hundred and forty-three times. A few years ago, an advertisement appeared of a woman who wished people to go and see her (and pay for it, I presume), and who stated that she had been tapped one hundred and twelve times, and had had two thousand eight hundred and eighty-eight pints taken from her. She came from Chepstow. I had not time to see her, but she had the certificate of a medical man, stating he had performed one hundred and twelve operations, and had removed two thousand eight hundred and eighty-eight pints."\*

*Treatment.*—Ovarian dropsy has been known to cease spontaneously; but such instances must be exceedingly rare. Yet, when we know that such cases do occur, it should give the patient suffering in this way some degree of courage to persevere in the appropriate modes of treatment, and the physician perseverance in prescribing them. It must be treated on the same general principles as other forms of hydrops abdominis.

Removal of the tumor by opening the abdomen in this affection has been practiced successfully in a few instances. The operation is, however, an exceedingly hazardous one, and in most cases destroys the patient by the peritoneal inflammation it sets up in the abdomen.

#### DROPSY OF THE FALLOPIAN TUBE—HYDROPS TUBALIS.

In this disease there is a heavy, elongated intumescence of the iliac region, spreading transversely, with obscure fluctuation. The affection is not common. Its causes, progress, and treatment are the same as those of ovarian dropsy.

#### DROPSY OF THE WOMB—HYDROPS UTERI.

Hydrops uteri is known by a "heavy, circumscribed protuberance in the hypogastrium, with obscure fluctuation, progressively enlarging without ischury or pregnancy; mouth of the womb thin, and yielding to the touch." The fluid is sometimes contained in a large cyst, or in a cluster of hydatids collected between the tunics of the organ, and in other cases it is contained within the cavity of the organ.

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\* There is a tombstone near Dartford, in Kent, erected to the memory of Ann, daughter of John Mumford, Esq., of Sutton, which proceeds to tell us, that "her death was occasioned by a dropsy, for which, in the space of three years and ten months, she was tapped one hundred and thirty-five times. She died the 14th of May, 1778, in the twenty-third year of her age, an example of patience, fortitude, and resignation." The species of dropsy is not, indeed, stated, but Sir Astley Cooper, who has referred to this monument, regards it with much probability, as an ovarian case.—Dr. Good.

**Treatment.**—This is, for the most part, the same as for other species of dropsy. The water may sometimes be drawn off. In a few instances, falls, blows, and the like, have caused its discharge.

#### DROPSY OF THE SCROTUM—HYDROPS SCROTII.

This disease is called by some *hydrocele*. It for the most part advances slowly, the enlargement taking place without pain. It is of two kinds—*vaginal dropsy of the scrotum*, in which the fluid is contained in the tunica vaginalis, or surrounding sheath of the testis, and *cellular dropsy of the scrotum*, in which the fluid is contained in the cellular membrane of the part. It is said that the scrotum in this affection has been known to attain the enormous weight of sixty pounds. It is known by the transparency of the swelling, which is such that a candle may be seen through its contents. It is caused by blows, wounds, etc., and by those influences generally which bring on dropsy of other parts.

**Treatment.**—In recent attacks of this disease, cold sitting-baths, compresses, etc., and tonic treatment generally, combined with fasting, may effect a cure. Often, however, it will be found necessary to have the fluid drawn off by a surgeon, and this has been repeated many times and during many years, in some cases. It is of great importance to attend well to the general health in these cases.

#### WIND DROPSY—INFLATION—EMPHYSEMA.

Wind dropsy consists of “an elastic and sonorous distention of the body or its members, from an accumulation of air in its natural cavities, in which it is not commonly present.” The affection is a rare one, and consequently needs no lengthy description.

**Treatment.**—This should be conducted on the same general principles as for dropsy. The treatment should be of a tonic character, and such as is best calculated to restore the vital energies of the system generally. The rubbing wet-sheet is a valuable remedy, and so also are wet compresses applied to the affected part.

#### OBESITY—POLYSARCIA ADIPOSITA.

In some countries, especially the East, obesity, if not very excessive, is considered as adding to the beauty of the individual. In some parts it is said that young women are regularly fattened for marriage; a different practice from that of the Roman ladies, who starved their damsels, for the purpose of making them as lean as possible on such occasions.

Obesity is not generally treated of in medical works as a state of

disease. It is, indeed, when not very excessive, looked upon as a condition not only of health, but of *good* health. Now all this is erroneous. A fat person is always to a greater or less extent diseased, and ready at any moment to experience the outbreaks of some violent malady, and which is always, other things being equal, more apt to go hard with the person than if he were lean.

In animals, likewise, a state of excessive fatness is well known often to be connected with organic disease of the viscera. A lady in the country, who is a good observer, informs me that she has often noticed in separating the fat from the intestines of hogs, that uniformly where there is a large amount of adipose matter upon these parts, they are tender and easily torn, but that when such is not the case, they are more tough. "The difference," she says, "is too plain not to be noticed." Fat persons, we know, are more liable than others to bowel complaints.

Fatness then, it should be remembered, is not a state of perfect health. It is no criterion whatever of a good physiological condition, as is generally supposed. Adipose matter encumbers the body by its weight, hinders the natural and healthful play of the various vital functions and processes, and is, therefore, in all respects objectionable.

Fat locates itself in the follicles of the adipose cellular membrane. If the perspiration becomes profuse in consequence of physical exertion, some portion of the adipose matter of the system is carried off in this way, and hence the good effects of regular and systematic daily exercise in preventing corpulency. If the perspiration becomes checked, or the individual is habitually inactive, there is always a liability to an undue accumulation of oily matter.

It is also here to be remarked, that fat is the basis of all tumors and morbid growths of the steatomatous kind. It contains the sebacic acid, which acts on many of the metals, such as lead, copper, iron, etc.

According to the celebrated physiologist Bichat, while fat is very abundant under the skin, around serous surfaces, and several organs performing extensive motion, there is none of it in the erectile tissues, under mucous surfaces, nor round arteries, veins, etc. Lymphatic glands, the brain, spinal marrow, and nerves are destitute of it. Among the muscular fibers it is somewhat plentiful, particularly in those of animal life; in those of organic life very little is found. The bones, cartilages, fibrous and fibro-cartilaginous bodies are also destitute of it, and fat never has any connection with the epidermis, or hair.

In reference to the foregoing remarks, I wish it to be understood that we do not assert that *no* fat whatever is to be found in a healthful body, for it is not possible that inanition should be so great as to ex-

clude *all* adipose matter in the living structures. In a true physiological state there is always a small amount of such matter, but so small, in the human body, as to amount to but little compared with the whole weight.

One author, Sauvages, was desirous of establishing a standard weight of healthy pinguescence; but such an attempt could hardly be accomplished, since the amount of fat must necessarily vary in different individuals, and the same individual has not unfrequently at one portion of the year a greater, and at another a less amount of adipose matter, being at each period also in good health. According to Frank, the fat of the human frame usually averages about a twentieth part of the whole, but has sometimes amounted to half, or even to four fifths. In some cases the bulk of the body has been very great. It has amounted to five hundred, and nearly six hundred pounds, in some instances. Bright, of Maldon, England, it is said weighed seven hundred and twenty-eight pounds; Lambert, of Leicester, seven hundred and thirty-nine pounds a little before his death, which was in the fortieth year of his age. The German journals give us examples of men who have weighed eight hundred pounds. Yet the "Philosophical Transactions" furnished perhaps a still more extraordinary example of this disease in a girl, that weighed two hundred and fifty-six pounds, though only four years old. The London butcher, Falstaff, who died in his thirty-second year, was of the enormous weight of eight hundred pounds. The celebrated Dr. Cheyne, while practicing in the city of London, eating and drinking freely, in the course of a few years became about three times as heavy as was natural for him, but by an opposite course he again reduced himself to the healthy standard. "Mr. Collet, master of the Eversham Academy," says Dr. Millengen "weighed upward of twenty-six stone (364 lbs); when twelve years old he was nearly as large as at the time of his death. At two years of age he required two nurses to lift him in and out of bed, one of whom, in a fit of anger, he felled to the floor with a blow of his hand." "At Trenaw, in Cornwall, there was a man, known by the name of Grant Chilcot, who weighed four hundred and sixty pounds; one of his stockings could contain six gallons of wheat." A great number of cases of a kind similar to the above might be quoted from history; but for our present purpose this would not be necessary.

*Causes.*—Physiologists tell us that considerable accumulations of fat sometimes appear to take place as the sudden effect of the influence of the atmosphere. Thus, in the short space of twenty-four hours, a mist will occasionally fatten thrushes, robin-redbreasts, etc., it is said, in such a degree that they can hardly get out of the way of the sports-

man's gun. This occurrence, which, according to Bichat, is common in autumn, is not in any case so striking in man. In general, excessive eating and drinking, in connection with a too indolent life, are the causes of the evil in question.

*Cure of Obesity* —In consequence of pride, appearance, and other inconveniences arising from obesity, a great variety of means have been resorted to for the cure of the disorder. The drinking of vinegar and other strong acids has been done from time immemorial, by many who were foolish enough to practice upon themselves, without the knowledge of what they were doing. It is related of a Spanish general who was of great size, that he drank vinegar so much that he was able to fold his skin round his body. Whatever may be the effect of this practice, one thing is certain: the benefit gained is dearly paid for in the injury done to the digestive organs.

Diminution of food of a nutritious nature has often been resorted to as a means of removing corpulency. Dr. Wadd, who wrote a work on the subject, remarked that "certain and permanent relief is only to be sought in rigid abstemiousness, and a strict and constant attention to diet and exercise." In a case attended by Dr. Gregory of Edinburgh, the patient weighed three hundred and twenty-two pounds, and by a regular system of diet was brought down to two hundred and ten pounds. In this instance brown bread, with a certain quantity of bran in it, was employed as the diet.

"A baker in Pye Corner," says Dr. Millengen, "weighed thirty-four stone (476 lbs.), and would frequently eat a small shoulder of mutton, baked in his oven, and weighing five pounds; he, however, persisted for one year to live upon water gruel and brown bread, by which he lost two hundred pounds of his bulk."

The celebrated Dr. Cheyne before referred to, who was born of a respectable family in Scotland, in 1671, and educated under Dr. Pitcairn, in Edinburgh, passed his youth in close study and great abstemiousness. But, as he tells us, coming to the city of London at the age of thirty, and finding the bottle companions, the younger gentry, and the free livers to be the most easy of access and most susceptible of friendship, he changed his course with a view to force trade, till he at length grew excessively fat, short-breathed, lethargic, and listless, and swelled to such a monstrous size that he exceeded thirty-two stone (448 lbs.) in weight. Having tried all the power of medicine in vain (and Dr. Cheyne was one of the class of honest physicians who practice upon themselves as upon others), he resolved to abstain from all other drinks than water, and from all kinds of food other than milk bread, vegetables, and fruits,

taken in very small quantities. This, with a course of active exercise in the open air, soon reduced him from the enormous weight of more than four hundred and forty-eight pounds to about one third of that weight, and at the same time restored his original vigor and health of body and mind. After some years, however, Dr. C., as men are wont to do, returned again to his more stimulating course of living, and as a consequence soon found coming upon him the same ailments as before. A return to his simple and active modes again worked a cure, and he lived to the age of seventy-two, enjoying clearness of intellect, and a good degree of bodily health quite to the last.

Here, then, is the great cure for obesity. The patient must starve himself—gradually but perseveringly—till the vital forces are made to swallow up and convey from the system the offending mass. True, not every old drunkard and debauchee can be cured in this manner, for he may have become so diseased, and his vitality run to so low an ebb, that it is not possible to cure by any earthly means. And yet these incurables even can be benefited that is, their symptoms palliated, if they can but be persuaded and have sufficient moral courage to follow out the proper course. But there are multitudes in society, young women and young men, as well as older persons, who can be thoroughly cured of their obesity, and who will be most ready to do it, once they are made to understand the mode. And this is as before hinted, to reduce the aliment to a very small amount, to take active exercise in the open air daily, to which should be added a course of bathing, and good and regular habits throughout. In this way, my most honest word for it, almost every patient suffering from obesity, can bring his or her body precisely into that state which is desired; and I remark, moreover, that it will surprise any one who is not acquainted with the facts, to learn on how small an amount of food the strength can be sustained, yea, improved upon, under such circumstances. The reader interested, is particularly advised to acquaint himself with what is said on the subject of the *hunger cure* in this volume.

## CHAPTER XV.

### RHEUMATISM, AND NOD

#### GOUT—ARTHRITIS.

IN the classics, gout is spoken of under the head of "*podagra*," when it affects the *feet*; "*chirogra*," when it affects the *hands*; and "*gonagra*," when it affects the *knees*. But all of these terms are comprehended in the name "*arthritis*." Until within a modern date, comparatively, gout and rheumatism were both classed under this head as one disease.

This disease has been designated by various appellations, according to its symptoms and characters. Gout is said to be *regular*, when it pursues its ordinary course; *irregular*, when such is not the case; *tonic*, when there is a good degree of strength in the system; *atonic*, when the bodily powers are weak; *acute*, when it lasts only a few days; *chronic*, when longer continued; *misplaced*, when it appears in some part not ordinarily attacked by it; and *retrocedent*, when it passes from an external part to some of the viscera, as the stomach, heart, etc. There is, also, what is called by some, *nervous gout*.

*History*.—Dr. Marshall Hall observes: "Arthritis seldom occurs during early youth. It is decidedly hereditary. It generally recurs in the person who has been once affected; sometimes at merely stated periods; occasionally from accidental causes. It affects the same, or different, and even successive parts, on these occasions; the pain is then less severe, but the subsequent debility longer continued. Arthritis affects the male sex, and the intemperate principally, but by no means exclusively. It is generally dependent on a deranged state of the system, especially of the stomach and bowels; and it very frequently attends the acute or protracted form of dyspepsia."

The disease occurs, for the most part, among males; and robust ones are more subject to it than those who are weakly. In one sense gout is a good omen in the system, showing that nature has power to expel morbid matters from the vitals, and then throw them upon the extremities. This is the reason why a strong man is more liable to the disease than a weak one. Females, also, sometimes have it; and those who are of the more masculine make are more subject to it than the more delicate. The reason why females generally run clear of the disease

is, because they are not such great wine-bibbers as men are. It occurs mostly among those who have large circular chests, short necks, and what some call "thick heads;" that is, persons who have bulky heads, and are of full habit. The more robust only of women, as a general thing, suffer from the disease; although the delicately formed of both sexes are now and then subjects of it. A great deal depends upon the manner of life. The disease *may* occur at any age; but it is seldom seen before thirty-five.

"After the attack of gout," says Dr. Elliotson, "people are generally better than they were before. They find it does them good; and, therefore, they are not at all sorry that they have had the disease. Many persons long for a fit of the gout when they have not had it before. They say that gout is in the family; and that if they had an attack they should do well. Those who *have* had it, if any thing be the matter with them, are satisfied that they should be a great deal better if they had another attack; and many people try to bring it on. The principal reason why patients are thus improved by the disease, is because of their being compelled to live without food, as it were, for some time. This always helps overfed free-livers, whether they have gout or other disease."

This improvement of health by gout is sometimes remarkable. Old and severe pains of the stomach, arising from indigestion, have been permanently cured by it. Palpitation, of long standing, has frequently stopped, it is said, upon the occurrence of a fit of the gout. "Strangury, inflammation of the bladder, piles, and almost every disease that can be mentioned," says Dr. Elliotson, "have ceased on the appearance of gout." But generally the disease makes matters worse in the end.

*Symptoms.*—The symptoms of an acute attack of gout are decided, as the patient well knows. The disease has a particular liking for the big-toe joint. The pain may, at first, be felt in the ball of the part; but it is not long satisfied with so soft a location to work upon, but goes to the joint itself. The pain is peculiar. It is said of a Frenchman, that on being asked what is gout, he remarked: "If you place your finger in an iron vice, and some one screws it till you can bear the pain no longer, it is rheumatism; if the vice is then turned once more round, it is gout." Some speak of the pain as if caused by the joint being torn apart with strong pincers, or by a gimlet or nail being bored or driven into the joint, or by a saw, sawing it apart. Some, also, have said that gout feels as if a great bull-dog were constantly gnawing at the joint. It is painful enough, no doubt.

At first, there is little or no appearance of inflammation; but after-



ward the painful joint becomes hot, red, and somewhat swollen. At the same time it becomes as sensitive as a part can well be conceived of. No sort of jar or amount of bed-clothes can be endured. The attack is most apt to come on at two or three o'clock in the morning. There is, of course, always more or less of general fever attending the attack.

Gout is apt to grow worse and more frequent as the subject grows older. At first it attacks only one joint, afterward it goes to several; at last it goes inward, or changes into some other disease. Gouty men do not live to be old, but die usually before sixty, of heart disease, apoplexy, or some like disorder. The reason is, gouty subjects do not reform their habits, but as soon as the fit is over, go afresh at their old modes of bodily abuse. In this way they are destroyed, for as a man grows older he is always having less and less vitality to endure the bad. Drugging for gout also comes in for a good share of the mischief. If a man's great toe is in a vice, he is not apt to be over-particular in the method of getting it out.

*Causes.*—A great many persons are proud to have it said that they are subject to this disease, because it denotes high living, and is well known to come from ancestors who, it is to be supposed, made or stole money enough, or had it left them, to enable them to live high. What an idea! to be proud of wine-bibbing and gluttony both in sire and son! I know a physician in this city who is very apt, on slight occasions even, to tell the ladies they have gout. That pleases some of them; better, at least, than it would to tell them the truth, that is, that they have only the hysterics. It is counted worth more to cure a case of gout than almost any thing else; and this said doctor is famous for knowing where his bread-and-butter comes from.

As regards the use of strong drink, it is somewhat singular that this disease comes only from indulgence in the lighter forms of alcoholic beverages. Fermented liquors have been looked upon by some as preventive of the gout. The truth is, they are so pernicious in their effects, that they attack at once the very citadel of life, or, to drop the figure, the vitals. But the lighter alcoholic beverages, such as wine, allow nature a chance, for a time at least, to throw the mischief upon an external part.

It is wonderful to notice how easy the attack is caused in many cases. A little extra eating or drinking; a little carousing or being up nights; a trifling exposure to wet and cold, such as a man ought not to mind, a little mental excitement, or the least blow or sprain of a part liable, may bring on an attack. The gouty subject never feels safe.

Physicians everywhere agree that there would be no difficulty in

keeping off attacks of gout if patients would only obey their injunctions as to temperance and comparative abstinence from flesh-meat. But gouty subjects in general much prefer the high living and drinking with the pain, than to live temperately and avoid the suffering.

*Treatment.*—Some have supposed it dangerous to apply cold to the painful parts. Harvey, the discoverer of the circulation of the blood, it seems, was a martyr to the disease, and when the fit came upon him, it was his custom to plunge his feet into a pail of cold water, which it seems did not harm him. I have known the same thing to be done in several cases, and never any harm from it. What is feared is, that the disease may be driven to some internal part or to the head. This might happen, possibly, if great violence were done the system, just as it might in rheumatism, or any other case. But I can not conceive of any danger, provided the application is agreeable to the feelings, and the paroxysm of pain is present when the application is made. I should do it upon myself.

In this, as in all other painful diseases attended with febrile action, water is the great, the sovereign remedy for quelling pain. No poison or combination of poisons can at all compare with it. The wet-pack, prolonged shallow-baths, and wet bandages are the means to be used. The practice should be continued as many hours or days in succession as may be necessary to quell the pain. It is far better to use cold, tepid, and warm baths alternately; the wet-pack, frictions, bandages, etc., constantly; that is, to live in water than to endure the pain. Nor does water act by repelling the morbid matters from the surface, but by drawing them out.

"Friction," observes Dr. Elliotson, "is exceedingly useful when exercise can not be adopted. It would be well for many persons who are lame in their feet to be rubbed down once or twice a day, like a horse. They would also find it a very great luxury." The rubbing wet-sheet is a still better mode.

The hunger-cure is highly serviceable in this disease. If the patient could know when a fit is to come upon him, he could with certainty keep it off by a day or two's fasting and living on water. No nourishment of any kind should be taken so long as the pain remains.

#### RHEUMATISM.

Rheumatism is of two kinds, acute and chronic, the latter being often a sequel of the former. It is a very common disease, often highly painful, and in the old methods of practice sometimes a very perilous disease.

Acute rheumatism prevails most among persons from puberty to the

age of thirty-five or forty years. It is sometimes seen in children as early as the third or fourth year, and probably it happens now and then even at a younger age. It is asserted on good authority, that in ninety out of every hundred cases of acute rheumatism, the patient is above sixteen years of age. Chomel noticed that in La Charité, Paris, out of seventy-three patients attacked by rheumatism, thirty-five were between the ages of fifteen and thirty, twenty-two between thirty and forty-five, seven between forty-five and sixty, seven were turned sixty, and only two were under fifteen.

There may be reckoned, according to nosology, *four* varieties of this disease: the *articular*, in which the pain is felt chiefly in the joints, muscles, and tendons of the extremities; *lumbago*, in which the pain is felt chiefly in the loins, and mostly shooting upward; *sciatica*, or rheumatism of the sciatic nerve, in which the pain is felt chiefly in the hip, but also in the back and shooting down the leg at times, and producing emaciation of the buttock and apparent, and, perhaps, in some cases, a real elongation of the limb; and *spurious pleurisy*, in which the muscles of the diaphragm are principally affected. But rheumatism is always essentially the same disease, in whatever way it may manifest itself.\*

Acute rheumatism consists, for the most part, in redness, heat, pain, and swelling, in other words, in inflammation of "the parts lying around, or entering into, the composition of one or more of the larger joints of the body; generally of several at the same time, or in succession; with a disposition to shift from one joint to another, or to certain internal organs, and especially to the membranes of the heart; and with fever."

Acute rheumatism is further characterized "by a great expression of pain, with excessive perspiration on the forehead, and a loaded and moist state of the tongue. The patient generally lies on his back, and especially avoids every motion of the body or limbs; or if he does move, he experiences an acute aggravation of pain, calls out, and gives a prompt check to the muscular effort. There is little languor or debility, little disturbance of the mental faculties; the general surface is usually covered with perspiration, which is usually *acid*; the skin is warm, pale, and often profusely moist, frequently with miliaria, and a peculiar odor is exhaled; the pulse is frequent, strong, and full; the functions of the head are unaffected; the appetite is sometimes little

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\* All of the expressions, *crick in the neck*, *crick in the back*, etc., refer to rheumatism; and the disease, in whatever way manifesting itself, is always to be treated on general principles and without regard to mere names.

impaired; the bowels regular; the urine is *acid*, and deposits a sediment of the lithates, especially on the decline of the affection."

In what is denominated *atonic* rheumatism, the parts are scarcely, if any hotter than they should be, and may even be relieved by heat. This state of things may exist even from the beginning of the attack, although it is much more apt to occur in the chronic form of the disease.

A striking peculiarity of rheumatism is its migratory character. It shifts from one joint to another, often quite suddenly and without warning. In some cases it changes back as suddenly to its former place. Sometimes, also, it travels from one part to another, but does not leave the old place. In this way most of the joints of the body may become affected at a time. It may also shift its place to almost any of the internal organs or parts. But this subject is not yet much understood. We know it often affects the heart and its membrane. In multitudes of instances the inordinate dosing that has been practiced in rheumatism has sent it to this vital organ. Heart disease, that is, a chronic inflammation and enlargement of the heart, is often caused by it.

The following tables from Dr. Haygarth, present a view of the parts most apt to be affected with this disease in the acute form :

| Joints.        | Cases. | Muscles.            | Cases. |
|----------------|--------|---------------------|--------|
| Knees.....     | 67     | Head.....           | 22     |
| Shoulders..... | 43     | Chest.....          | 21     |
| Ankles.....    | 42     | Thighs.....         | 20     |
| Hands.....     | 33     | Legs.....           | 20     |
| Feet.....      | 36     | Arms.....           | 12     |
| Wrists.....    | 33     | Side.....           | 7      |
| Hips.....      | 30     | Belly.....          | 3      |
| Back.....      | 25     | Stomach pit.....    | 3      |
| Neck.....      | 15     | Stomach itself..... | 2      |
| Loins.....     | 13     | Face.....           | 2      |
| Elbows.....    | 10     | Eye.....            | 2      |
| Fingers.....   | 9      | Throat.....         | 1      |
| Heel.....      | 4      | Gums.....           | 2      |
| Toes.....      | 2      | Groin.....          | 1      |
| Ham.....       | 2      |                     |        |
| Joints.....    | 19     |                     | 118    |
|                | 888    |                     |        |
|                |        | Limbs.....          | 8      |
|                |        | Wandering.....      | 4      |
|                |        | General.....        | 2      |
|                |        |                     | 14     |

*Nature.*—Rheumatism is evidently a constitutional disease. Many have regarded that it is dependent on a peculiar offending matter pervading the system, or, in other words, to the presence of an abnormal acid in the circulation, which, according to Dr. Prout, is the lactic acid. This would seem probable from the fact that a considerable

amount of such acid is thrown off by perspiration in some attacks of the disease. Others object to this view of the subject, offering as an argument, that the disease is sometimes purely nervous. But in this it is forgotten that the acid matter may act upon the nerves only in some cases, while in others its influence would be felt in the fibrous or serous textures. Some, also, have held that the disease is only an ordinary inflammation. But this is merely assertion without proof.

*The Chronic Form.*—This, like the acute variety of the disease, may be located in any part or texture of the body; but it is most frequent in the joints. It is not always the effect of acute rheumatism; but is very apt to occur in this way.

There is generally little or no fever in this form of the disease, except when the joint becomes affected by scrofulous or other inflammation, as is sometimes the case in connection with rheumatism.

In old and severe cases the joint often becomes very stiff, and comparatively immovable. The muscles and ligaments become contracted, thickened, and rigid, and the joints are often drawn to one side, producing a good deal of deformity; in some cases dislocation itself is thus caused. In very old cases the muscles become almost, or wholly useless, and the parts quite paralyzed.

In this form of the disease, as well as in the acute, the patient can not unfrequently foretell a storm or change of weather, by the nervous or painful sensations they experience.

*Causes.*—It has been customary among medical writers to attribute this disease to the effects of wet and cold. We know that these influences often prove the *exciting* cause of rheumatism; but that they are capable of actually *generating* the disease is evidently a fallacy, as would appear from the fact, that in many of the coldest countries it is comparatively unknown. The aborigines of our country were often enough exposed to these influences; but they never had rheumatism before the whites had introduced liquor among them.

The truth is, rheumatism is a constitutional disease. Its elements must pre-exist in the system before wet and cold can suffice to induce an attack.

I believe it will be found in all cases that rheumatism is preceded by a derangement of the digestive organs. I have never known an instance in which such did not appear to be the case, although it sometimes happens that the symptoms of gastric disturbance are not very marked, and may not be noticed by the individual. But in general the patient is fully aware, on being questioned as to the facts, that he has been for a considerable time dyspeptic, before the rheumatic attack has fixed itself upon him.

That inheritance exerts a marked influence in this disease all admit. We know that tubercles, syphilis, etc., may exist at birth. This being true, it is no great stretch of the imagination to believe that rheumatism may pass from the parent to the child. At all events, a *predisposition* to the disease is often inherited; and those who suffer from hereditary rheumatism are much more difficult of cure than others. Yet in hereditary cases the disease is plainly curable, provided it is taken in season, although some are not willing to admit the fact. No hereditary disease is necessarily incurable.

*Prognosis.*—I have remarked that rheumatism is not often a fatal disease. It seldom destroys life at once, although when it is allowed to run on in a chronic form, which may last through a long series of years, it yet doubtless often cuts off a considerable period of the patient's earthly existence.

Dr. Fordyce observes: "The disease seldom proves fatal. Out of eighty-seven cases only two proved fatal. One was markedly a very sudden transition to the brain. In the other, the disease seemed to be suddenly transferred to the vital organs, producing the most violent dyspnœa, and speedily proving fatal." In both cases, probably, the medicines killed the patient, by causing a *metastasis* of the disease.

Dr. Haygarth says: "Physicians have observed that acute rheumatism is seldom or never a fatal disease. This observation may be true, and is confirmed by my own experience, while it remains in its proper seat, the muscles and joints, and when not combined with other mortal maladies. But out of one hundred and seventy cases, I have found twelve which had a fatal termination, either by a translation of the inflammation to the brain, lungs, kidneys, stomach, or some other vital part, or as being found in combination with other diseases." He deduces the following conclusions from his observations: "1st, that seven fatal cases were combined with phrenitis; 2d, that three cases terminated with a sudden and violent diarrhea, two of them combined with phrenitis, and the third with convulsions; 3d, that in one case, when the pain and swelling receded from the joints, the patient was attacked with shortness of breath, cough, and spitting of blood, which soon terminated fatally; 4th, that in three of the fatal cases the patients were so faint and languid that they were apprehensive of falling into a syncope; 5th, that in two cases miliary eruptions accompanied the rheumatism; 6th, that in one there was a suppression of urine; and 7th, that one was combined with a typhus fever, and aphthæ on the tongue and throat."

Rheumatism appears to be much more dangerous in children than in adults. The heart is very liable to become affected in such cases.

I have never known a child to die of rheumatism, however, that had not been badly drugged. The younger the child the greater the danger, both from the disease and the poisons given.

*Treatment.*—Dr. Watson, who believes that rheumatism may be cured in *some* cases by drugs, makes to his class the following remarks in speaking of the multiplicity of remedies that have been resorted to in rheumatism: "Now, you may be sure, when men's opinions concerning the treatment of a disease which is of common occurrence and easy recognition are thus unsettled and diverse, you may be sure, first, that no specific for the disease has yet been discovered; and secondly, that the disease is not very obedient, or not steadily obedient to any remedial plan. When I first began practice I pleased myself, now and then, with the belief that I had ascertained the best cure for acute rheumatism; so rapidly did the disorder recede and cease upon the administration of such or such a remedy. But on the next trial of it, perhaps, my expectations have been miserably disappointed." Now, we, of the hydropathic school, are not in any such dilemma. True, we do not claim that water is a *specific* for rheumatism or any other disease. But we cure acute rheumatism, as well as chronic, often, and that most readily by this remedy; that is, we use water, not in a specific way, but vary the application according to the case, and thus cure it upon rational and philosophical principles.

Dr. Warren, the elder, of Boston, made a shrewd and candid remark, when, on being asked what he considered good for acute rheumatism, he answered, "*six weeks.*" Six weeks letting alone the disease is assuredly a great deal better, as well as safer, than a six weeks' dosing with guiacum, colchicum, croton oil, conium, mercury, opium, and the alkalies.

The disease varies indefinitely in its severity. So also should the treatment vary. It is to be managed according to the case. In the acute form it should be treated in the acute way, that is, promptly. The two great things are to keep down all fever, local and general, as much as possible, and to prevent the pain. The less the patient eats for some days, or at least till the violence of the disease has been quelled, the better. The hunger-cure is an admirable remedy here.

The following case, which I treated some years ago in this city, and wrote out soon after, affords a good illustration of the treatment, as well as the inefficacy of drugs in this disease:

This is the case of Mr. Ives, of the Musical Academy, Houston Street, a well-known author and teacher in music. The facts concerning his case are known to our friend, Dr. Crane, of Leroy Place, to Park Benjamin, Esq., who was then residing in the same house with

Prof. Ives, to the Rev. Wm. H. Channing, to Mr. Osborne Macdaniel, who also rendered efficient aid in the treatment of the case, and to a large number of Prof. Ives' pupils and friends.

Toward the close of the past winter (1845), Mr. Ives was seized with a most violent attack of rheumatic fever. His health, as is usual in such cases, had for some time been growing poor. The hands, wrists, elbows, feet, ankles, and knees soon become exceedingly swollen, hot, and painful, and the whole system, at the same time, deeply affected with general fever.

Previously to my being called to attend Prof. Ives, a variety of means had been resorted to by the two attending physicians. Gum guaiacum, a powerful stimulant, diaphoretic and cathartic, and repeated and powerful doses of colchicum, a violent acrid, narcotic medicine, had been administered. Two days previous to my first visit, the rheumatism went to the heart. This happens not unfrequently, and if the attack be severe, the symptom is always to be looked upon as a very dangerous one. There is reason to believe that it is often caused by the mischievous medicines administered. The mucous membrane of the stomach and bowels becomes exceedingly irritated and inflamed, and the heart, having strong sympathy with those internal parts, becomes affected. That such a result is caused by the too free use of powerful medicine is not merely an opinion of hydropathists, but of some of the most experienced in the old practice. In this case, the attack of the heart was so severe as to cause delirium. It seemed, the patient said, as if a gimlet were being bored through the heart.

Mr. Ives, from the first, had an inclination to use water. On asking the attending physicians (there were two) whether this remedy could not be advantageously used, he was answered, "*What! use the very thing to cause rheumatism, would you?*" At length, finding no relief, growing constantly worse, and not being able to get any rest, and suffering more than can be described, I was sent for soon after the middle of the night, two weeks after the attack. Considering the bad work that had been done, fearing more, by far, the effects of the medicines that had been administered than the disease, I was reluctant to proceed. I knew full well, however, that the body, all in fever and suffering as it was, and those swollen, inflamed, and painful parts, could all speedily be cooled to the natural temperature; and that in so doing the pain would at once subside, and thus the sufferer would be brought into the condition the most favorable for recovery that the case would admit of.

A lengthy detail of the treatment can not here be given. Thick woolen shirts, that had been left upon the body since the first of the attack, were cut into shreds—this mode being the only one by which



they could be removed. Mr. Ives had been charged to avoid the slightest change of air. The garments, therefore could not be removed. It is not easy to conceive of the great amount of acid, fetid perspiration with which these garments were saturated, and the whole surface covered. The body was kept well guarded from cold. A thorough cleansing was given by means of towels wet in tepid water. During this operation a most loathsome stench filled the room. So grateful and cooling was this process (for *tepid* water, as well as cold, is cooling), that it was with difficulty that Mr. Ives could remain awake till it was finished. Observing the great relief so quickly given, Mrs. Ives said, "*If you cure that man, never shall I forget you!*" She had considered his case entirely hopeless, and it was generally believed by Mr. Ives' friends that he could not possibly recover. The swelled joints, and almost the entire body, were then, after the cleansing, bandaged in wet cloths, arranged so as to cause a soothing or poultice effect. The treatment was persevered in; three and four ablutions daily were given. A variety of modes in the use of water were resorted to, as the symptoms from time to time demanded, the object of all of which was to cause in the whole system, and each of its parts, the natural degree of coolness, to keep the bowels open and the stomach free from irritation, and to prevent, as far as possible, all pain; to insure sound, quiet, and refreshing sleep, and by all natural means to invigorate the whole system. The directions were fully and faithfully carried out, and the ever assiduous attention of Mrs. Ives was no small item in the success of the cure. In *three days' time*, Mr. Ives was able again to stand upon his feet, and in *two weeks* was able to walk about, and in two or three days more went about the city. He has been well ever since.

I am confident that in Mr. Ives' case, the treatment of his first two physicians had, according to the ordinary modes, been judicious. They, without doubt, managed precisely as they would have done were they in a similar manner afflicted. Like results can, by judicious management, easily be caused in every case of acute rheumatic fever. Every trial of the kind serves only the more strongly to convince me that all other modes of treatment now or ever known, in point of efficacy, are mere child's play compared with this of water.

*Further Remarks.\**—We deem it necessary that, concerning the treatment of a case so important as the above, some further explanations be given. The notes were written very hastily, and without sufficient exactness. The general principles of the treatment adapted to all cases of a similar kind, we think, we can make plain to all.

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\* These remarks were written several months after the above, for the *Water-Cure Journal*.

1. We are to observe that Mr. Ives had had for fourteen days a very high general rheumatic fever, which also invaded all the larger joints.

2. That about the eleventh day the disease attacked also the heart, always a dangerous symptom.

3. That energetic means had been resorted to without any apparent degree of success to arrest the disease.

4. That Mr. Ives had been growing constantly worse, until the water treatment was commenced.

5. That at the time of commencing this treatment, the sufferings were such as wholly to prevent sleep. There was a constant desire to change, and yet with the aid of two or three strong men, the greatest difficulty was experienced in being moved.

6. That the affection of the heart was constant, and at times so painful as to cause delirium.

7. That among other, so-called, remedies, colchicum, the great dependence in the old mode for curing this disease, was given to the utmost extent that was thought safe.

The reader, then, can imagine the state of the patient. It is in the night time, toward morning. The night thus far has been spent sleepless and in groans; the limbs remind one more of an elephant's limbs, so much are they swollen. Without causing the greatest pain it is impossible to move. The whole system is, as it were, burning with fever, the pulse being above 100, full, tense, and throbbing. What is to be done in so formidable a case? Surely, there stands a large center table, well covered with vials, potions, and a magnetic apparatus. If all these have been tried under the care of two physicians well skilled in their use, what is to be expected of pure, clean water? It is proper to mention, likewise, that, as in houses generally, except those recently built, there is no bath-room, no apparatus for bathing—certainly it falls to our lot sometimes to do good work, if such we can, with very poor means to do it with.

The first thing that nature demands of us in such a case, is to *relieve the pain*. The woollens were at once cut to pieces, as this was the only mode by which they could be removed. The acid, fetid perspiration peculiar to the disease was quite as much as one could bear without fainting. The body was, as before said, well cleansed piecemeal, by rubbing with towels, being at the same time well guarded from the air. The disease had proceeded so far that cold water would have been too powerful; it would have caused spasms, which might have proved dangerous. The wet bandages were at first cooling and soothing, and were often changed before becoming too hot or dry. A

large wet bandage, extending from the armpits to the hips, for the purpose of drawing outward, poultice-like, was kept constantly applied. Things being thus arranged, the excess of heat in the whole system, and particularly of the painful parts, being removed, and the pulse being correspondingly lowered, and some cold water drank, it was the most natural thing that sweet and refreshing sleep should be enjoyed; still, under such circumstances, it would be but comparatively a short time before the feverishness and pains would begin to return, when the same processes would again be necessary, within three or four hours at least.

From four to six times per day these bandages were changed, and the swollen, painful parts were well rubbed with the wet hand, and the whole body washed three and four times in the twenty-four hours. For ever, in gout and rheumatism, there is not the least danger of applying the cooling means, so long as they are agreeable, and the parts are hotter than is natural. It is altogether absurd to suppose, as is often done, that these diseases are some mischievous sprite, which the least application of cold is liable quickly to transfer to some internal organ or part. It would be well-nigh, if not quite, impossible to cause an occurrence of the kind, and a well-authenticated case can not be found on record, we will venture to say.

As the feverishness becomes reduced, less and less of the cooling means are demanded. In Mr. Ives' case, the difficulty of moving was so great for the first two days, that the wet-sheet was not used. The bandages, however, covered the larger part of the surface, causing the same effects. After two or three days the wet-sheet was applied at nights, at about ten, in which Mr. Ives slept very soundly in a half-raised position, until waking, which was four or five hours, when an ablution was performed, and some hours more of good rest were experienced. The first two or three days of the treatment, at least two thirds of the whole time was spent in refreshing sleep. The bowels were regulated daily by clysters of tepid water; water as much as was desired was drank; and a very important thing not to be omitted, is, that not a particle of food was taken until the third day. Why add fuel to the fire, so long as any general fever remained? Food would only increase it.

In about two weeks, as we have said, Mr. Ives was out; but still, as is always the case in this disease, the remnants of the disease for a while remain. The daily baths were kept up as during the treatment after the first two or three days, by sitting in a tub of water, the water being poured upon the body, and the body well rubbed; but still more efficient means were needed. According to our advice, it

was not long before Mr. Ives had a Croton shower-bath arranged, which being daily taken, in a few weeks expelled wholly the disease. He has taken the cold-bath ever since, and now, in the midst of winter, is as well, if not better, than ever in his life.

*Treatment of the Chronic Form.*—As a general thing, chronic rheumatism is curable, particularly if we get it in any reasonable season. In some of the old cases, which have existed for twenty or thirty years, and the joints already warped and “put out,” a complete eradication can not be expected. In many cases, also, the patient either has not the means or the courage to enable him to pursue the “cure” long enough. In old, bad cases, it was common for Priessnitz to promise nothing for the patient unless he could remain with him a whole year. In some cases even years were required to eradicate the complaint. We Americans can hardly wait so long. We had rather get patched up a little, and then hobble on. If the Graefenberg guests had adopted the vegetarian diet, they would have got cured much sooner in most cases.

No disease, perhaps, varies more than chronic rheumatism with regard to the time required for effecting a removal of the disease. Some very bad cases, apparently, are cured in a short time, while others of far less severity require a much longer period. No one is wise enough to foretell these things. Dr. Gully states the time for curing chronic rheumatism as from three to twenty months.

In this city, since the introduction of the Croton, and the publication of the “Water-Cure,” many persons have cured themselves of this disease simply by cold bathing and attention to diet. Here is a case of this kind, which I noted, several years since, for the “Water-Cure Journal :”

Mr. John A. Deveau, of this city, aged 46, a shipwright by occupation, informs us that he was troubled for many years with lumbago (rheumatism in the back), and rheumatism in different parts of the system. He had suffered often severely; sometimes it had been so bad as almost to prevent the power of dressing and undressing. He had, besides, indigestion, with acidity of the stomach, etc. His business exposed him much to the heated vapors caused by the steaming of planks used in ship-building; and in this way the rheumatism was kept up, that is, by frequently taking cold.

About the middle of February of the last winter, Mr. Deveau was attacked severely with the old complaint. It commenced more particularly in one hip. He attempted to remove it from this part by a large blister. This appeared to drive the pain to the other hip. He took a good deal of colchicum—the great remedy, so called, of the old school—applied lotions, ointments, etc. etc., all without removing the

disease. He at length was induced to commence cold bathing, with the hope of effecting a cure. He took always one cold-bath each day, and at times two. A short time only elapsed before the rheumatism was driven to the winds, and has not troubled him since, *because he continues perseveringly the daily bath.*

Some time after becoming cured, Mr. D. made a considerable change in diet. He now feels more vigorous and elastic, and a greater buoyancy of spirits than he has within twenty-five years. Many cases like the above have come under our observation.

One of the most notable cures which I have ever known or heard of, happened in the person of STEPHEN GOODHUE, who is now a member of the Society of Shakers, at Harvard, Mass. He wrote it out for publication in the "Water-Cure in America" some years ago. It is as follows :

"BOSTON, December 11th, 1846.

"DR. BEDORTHA—*My dear Sir:* As I have been solicited both by yourself and Dr. Shew to furnish a statement of my case and the effects of the hydropathic treatment, I feel that I can not consistently withhold any information which may perhaps remove prejudice from other minds, and thus recommend a simple, safe, and effectual remedy, which, after many years of suffering, has, by the blessing of God, relieved me from bodily pain, and restored me to comfortable health. My age is forty-nine. For several years previous to 1831 my constitution had suffered by fevers and other maladies, for which I was treated in the usual way, with preparations of mercury and other kindred poisons, until my whole system was filled and saturated with morbid deposits.

"Late in the autumn of that year I was suddenly attacked with severe pains in the hip and knee, and all the way between the large muscle which passes over the thigh the flesh became black and blue, the muscles on the under side of the knee contracted, the limb perished, appetite failed, sleep departed, and life became burdensome.

"The physicians called the disease by various names, rheumatism, sciatica, neuralgia, hip disease, tic douloureux, etc., etc. The popular remedies were recommended and applied, blisters, issues, cupping, leeching, acupuncture, with plenty of opium and other narcotics. These only added to my sufferings, and failed to give me any permanent relief. After being confined to my room all winter, my physician advised me to take lodgings in the Massachusetts Hospital, where I might have the benefit of the experience of the most eminent of the faculty. When I entered, *one warm-bath* was prescribed and used, which served for the whole term of several weeks. As the patients generally seemed to be, I also was, dosed with a preparation of mer-

cury in the celebrated Jackson pill. I left the institution without being cured, but was really made worse. The next fall I was advised to seek a warm climate. I sailed for Cuba, and passed the winter months at Santiago Hot Springs, and returned in the spring, no better. The hip bone was then crowded from the socket, and I was still suffering night and day. I next sought relief from Doctor Hewett, the bone-setter. After forty days of bathing and hard rubbing, the bone was replaced. The cause still remained, and I suffered on. I then tried the Thomsonian remedies—took ten or twelve courses in quick succession. This practice relieved me *some*, but did not effect a cure. To this I subsequently resorted frequently, for ten or twelve years, as a temporary and partial relief. In the summer of 1844 my pains increased, and although I had abandoned all expectation of ever being cured, I again called on one of the faculty. He candidly told me I must not expect to be cured, but advised me to try croton oil externally, as a *temporary relief*. I was foolish enough to adopt the prescription, and the consequence was, a severe inflammation of the parts, with additional pains.

“Soon after this I was persuaded by a German homeopathic physician to try the WATER TREATMENT, with some of his little pills. These I had before used, with but little if any effect.

“With the doctor’s assistance, I used the water in various ways, with the wet-sheet as well as I could at home, for eight weeks, with scarcely any perceptible effects. I continued the sponge-bath through the winter, and in May, 1845, resorted to the Water-Cure Establishment, at New Lebanon Springs. I was still very lame, and suffered constant pain. I found, however, that while under the treatment I suffered less, and so was induced to persevere. I concluded, whether I was to recover or not, that while living I should keep in the water much of the time, though I might not be cured. I was under full treatment about sixteen weeks, under the general direction of Doctor Shew, before any decisive crisis was manifest.

“The crisis appeared first in the form of a rash, and subsequently in round blotches wherever the wet bandages had been applied. I then began to experience some relief from my pain. Although, by diet and treatment, I had become very much reduced in flesh, I felt stronger and better day by day.

“After about twenty weeks I returned home and continued the treatment for several weeks longer, till I was nearly free from pain. Last June, you will recollect, I resumed the treatment, under your advice, at New Lebanon Springs, and in two weeks a fine crisis appeared in the form of raised circular eruptions, small at first, but continued to

spread till they all ran together and covered the skin under the wet bandages. After eight weeks I returned home, free from pain, and now consider myself well. I continue the sponge-bath in the morning; am about twenty pounds heavier than I was last year; appetite good; I sleep well, and have a prospect of living to praise the good Lord for the blessed effects of *cold water*.

I'am, with high regard, sir, yours, very respectfully,

S. G.

Stephen Goodhue was one of the greatest sufferers, when he came to us, I have ever known. His limb was very much drawn up and deformed, and his nights were spent in groaning with agony the greater part of the time. He could sit in no common seat without great pain, for which reason he carried with him a fisherman's cricket. I have often seen him lean upon this with one knee, and his head upon the table in the parlor after dinner, as the easiest position he could get into. In this way he would get a little sleep. No one, perhaps, ever persevered more faithfully than Mr. Goodhue, and his reward was ample. He, to this time, 1853, eight years since his treatment, is as well, apparently, and strait as any one of his age. Long may he live to bless the WATER-CURE.

I must here remark that one peculiarity in the effects of water treatment in chronic rheumatism is, that the patient is rendered apparently worse before he feels any considerable improvement. The disease must, in short, be made more acute. Acute disease is much more readily cured than chronic; and rendering the disease more acute is nature's only step to health. If the disease is driven outward, and more to the extremities, the omen is a good one.

#### NODOSITY.

This disease of the joints was first distinguished from gout and rheumatism by Dr. Haygarth, of Bath, England. It occurs, principally, in females somewhat advanced in years. "These nodes," says Dr. Haygarth, "are almost peculiar to women, and generally begin about the period when the menses naturally cease."

*Symptoms.*—Marshall Hall observes: "The affection consists in hard, pale, and painful swellings about the different articulations, especially those of the fingers; but, also, successively about any of the joints. It increases gradually, and often induces much suffering and more deformity. The swellings are sometimes tender under pressure; they are confined to the immediate vicinity of the articulations, and do not appear to affect the muscles; the motion of the joints become much impeded, and sometimes a degree of dislocation occurs.

**Diagnosis.**—Dr. Haygarth observes: “The nodes appear most nearly to resemble gout. Both of them are attended with pain and nodosity of the joints; but they differ in many distinguishable circumstances. 1. In gout, the skin and other integuments are generally inflamed, with pain which is often acute, soreness to the touch, redness and swelling of the soft parts, but in no respect like the hardness of bone. 2. The gout attacks the patient in paroxysms of a few days, weeks, or months, and has complete intermissions, at first for years, but afterward for shorter periods. 3. The gout attacks men much more frequently than women.

“These nodes are clearly distinguishable from acute rheumatism, because they are not attended with fever. The tumor of the joints is much more durable, and less painful, in the former than in the latter disease. The nodes are totally different from chronic rheumatism, because the latter chiefly affects the muscles, and is seldom attended with any swelling of the parts.”

The following table of Dr. Haygarth presents a view of the parts most apt to be affected with nodosity:

| Joints.        | Patients. | Joints.     | Patients. |
|----------------|-----------|-------------|-----------|
| Fingers.. 18 } | 29        | Neck .....  | 3         |
| Hands.. 7 }    |           | Elbows..... | 3         |
| Wrists.. 9 }   |           | Hips.....   | 3         |
| Knees .....    | 10        | Heel .....  | 1         |
| Feet.....      | 6         | Leg .....   | 1         |
| Ankles.....    | 6         | Joints..... | 8         |
| Shoulders..... | 4         | Total.....  | 74        |

**Treatment.**—The medical management of nodosity should be the same as that for rheumatism, except that a larger share of friction upon the affected part is necessary in the former complaint. Cold, wet-hand rubbing, alternating with bandages, is a useful measure. Every possible means should be taken for restoring the general health.



## CHAPTER XVI.

### OF SCROFULA AND CANCER.

#### SCROFULA—KING'S EVIL.

THE term "*scrofula*" is of Greek origin, "*scrofa*" signifying "*a sow*." Scrofula may be considered as importing *swine-evil*, *swine-swellings*, or a peculiar kind of morbid tumors to which swine are subject. This disease occurs, likewise, often in the horse; in which case it is called *farcy*.\* Cows, if badly kept, as, for example, in confined stables in a city, are also well known often to become affected with scrofula. But man is probably more subject to it than any of the lower animals.

If we are to regard pulmonary or tubercular consumption—which, I think, we should—as a form of scrofulous disease, a very large proportion of the human family die of scrofula—not less than one fourth, as we have good reason to believe. Scrofula manifests itself by a gradual enlargement of the lymphatic glands, especially of the neck, which becomes the seat in most, if not all cases, of a deposition of tuberculous matter. This matter becomes softened gradually, the adjacent parts ulcerate, and a curd-like fluid is discharged. Not unfrequently, also, the eyes, the mucous glands of the nose, and tonsils, become affected; and even the joints and bones, in some cases, yield to the influence of the disease.

The anatomical changes which take place in the lymphatic glands in this disease, are well described by Dr. Abercrombie. He observes: "In the first state of enlargement these glands present, when cut into, a pale flesh color and an uniform, soft, fleshy texture. As the disease advances the texture becomes firmer, and the color rather paler. In what may be regarded the next stage, we observe portions that have lost the flesh color and have acquired a kind of transparency, and a texture approaching that of soft cartilage. While these changes are going on, we generally observe in other specimens the commencement of the opaque, white structure, which seems to be the last step in the morbid changes, and is strictly analogous in its appearance and prop-

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\* The disease called *glanders*, in the horse, has been shown by M. Dupuy to consist in tubercular affection of the mucous membrane of the nostrils. He regards the disease as non-contagious.

erties, to the white tubercle of the lungs. In a mass of considerable size we can sometimes observe all these structures, often in alternate strata; some of the strata being composed of the opaque white matter, others presenting the same pellucid appearance, while in other parts of the same mass, we find portions which retain the fleshy appearance. In the most advanced stage, the opaque, white or ash-colored tubercular matter is the most abundant; and this afterward appears to be gradually softened, until it degenerates into the soft cheesy matter, or ill-conditioned suppuration so familiar to us in affections of this nature."

There are several diseases that are usually recognized as being of scrofulous character, the more important of which I shall now briefly mention.

1. The inflammation and suppuration of the glands about the neck, before mentioned, and which sometimes heal, leaving scabs and scars, which in some cases resemble those following a scald or burn.

2. Tubercular disease of the lungs, or pulmonary consumption, and tubercular disease generally.

3. Ophthalmia, or inflammation of the eyes, when of a peculiarly obstinate character.

4. Otorrhœa, or a purulent discharge of offensive character from the ear, the meatus auditorius externus being particularly affected.

5. Ulcerations of the mucous membranes of the nose, mouth, throat, etc.

6. Chronic inflammation of the synovial membranes and other parts composing the joints, white swelling being a familiar form of this species of disease.

It is to be remarked also in this connection, that scrofulous children are more subject to worms than others; that M. Rufz, who examined the bodies of thirty-two children who had died from the effects of some of these morbid changes called *scrofulous*, found tubercles in the lungs in every instance; that, according to the same authority, affections of the bones in children are, in the majority of cases, due to the development of tuberculous matter in the substance; that scrofulous persons are believed to be more subject to nervous affections and to insanity than others.

One of the effects of this disease is to produce abortion. In other words, the scrofulous fetus is not unfrequently so feeble, that the vital processes in the womb can not go on healthfully; and as a consequence the embryo is expelled. The fault—if such we call it—may be on either the mother's side, or the father's, or both.

Scrofula is well known to occur oftenest among subjects possessing

a fair skin, light hair, fine, delicate complexion, blue or gray eyes which are large, long eyelashes, tumid upper lip, precocious intellect and affections, undue excitability of both mind and body.\* "A languid circulation, a slow and weak pulse, chapped hands and lips, chilblains, cutaneous diseases of the scalp and face, chronic inflammation of the conjunctiva and eyelids," are additional marks of the scrofulous diathesis.

The disease most commonly occurs between the age of two or three years and puberty, and oftenest under seven years of age. It rarely occurs as a first attack after the individual has grown up.

This affection is sometimes joined with some other, such as rickets, spinal disease, etc. It is very apt, where a predisposition to it exists, to follow severe fevers and eruptive diseases, such as typhus, small-pox, measles, scarlatina, yaws. Syphilis is also not unfrequently its forerunner. The long-continued use of mercury is very liable to induce scrofulous disease. Severe grief and other mental troubles, such as the loss of property, may also bring it on suddenly.

*Causes.*—These are numerous. Scrofula is essentially a disease of weak vascular action, or, in other words, of debility. Hence any agency which has a tendency to induce this state of the system, is liable to induce an attack. Extreme heat and cold, especially when occurring in irregular vicissitudes, are powerful disponents of the disease. Extreme heat being a relaxing and debilitating agent, is particularly unfavorable in regard to scrofula.

Lugol, the celebrated French writer on scrofula, has attempted to prove that the disease is invariably hereditary. Now it would seem that if hereditary transmission were the only source of scrofula, it would long since have died out. It must have had a beginning at some period, and that beginning was occasioned by violation of physiological law. Beyond all doubt it has many beginnings, and is caused in a great variety of ways. We know that tubercles may be caused at pleasure in animals, by subjecting them to unhealthful influences.

Dr. Good, in speaking of the effects of a cold, even climate, in comparison with those of the warmer cities, observes that "we meet with a far smaller proportion of scrofula in early life among the peasantry of higher latitudes and mountain scenery, as that of Scotland and Switzerland, than among the mechanics of crowded and warmer cities."

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\* Dr. Cullen observes : "Scrofula most commonly affects children of soft and flaccid flesh, of fair hair and blue eyes, smooth skin and rosy cheeks ; and such children have frequently a tumid upper lip, with a chap in the middle of it ; and this tumor is often considerable, and extended to the columna nasal and lower part of the nostrils.

Dr. Alison says: "I was told by one of the physicians of the Hôpital des Enfants Malades, at Paris, where upward of five hundred children die annually, whose bodies are almost uniformly opened, that he believed nearly one half of the bodies he saw opened had scrofulous tubercles in some part or other."

The same writer calculates from data furnished by Dr. Percival, that the proportion of fatal scrofulous cases among children at Manchester, England, at the time Dr. Percival wrote, could not be less than one third of the whole infantile mortality; while at Waverton, a country parish near Chester, it appears from the same documents that deaths from scrofula in children under five years of age, did not amount to a fourth part of this proportion. In the bordering village of Reytton, the difference appeared to have been still greater; for the whole mortality of children under five years of age in this last parish, compared with the same period of parallel mortality at Manchester, was only as two to seven, not more than a seventh part of the children born in this village appearing to die before they had attained their fifth year.

The foregoing facts are assuredly well calculated to impress upon the reader's mind the difference between pure country air and the foul atmosphere of crowded cities, as touching the subject of scrofulous diseases.

Dr. Watson, also, gives collateral testimony on the subject. A number of male prisoners, chiefly young men, became affected with glandular swelling of the neck, after incarceration for some length of time in the Penitentiary of Milbank. The circumstances of their health led to a relaxation of their punishment. Instead of being kept in solitary confinement in a cold, damp cell, and on the prison diet, they were permitted to work for several hours daily in each other's company, in the garden of the establishment. An improvement was made in their diet, according to the notions of those who had the care of them, and the betterment in their condition was rapid and striking.

One of the medical inspectors of the English factories, referring to the effects of drug opiates that are administered with great freedom to the children of the operatives of that country, gives the following lucid picture concerning them: "The consequences produced by the system of drugging children, are suffusion of the brain, and an extensive train of mesenteric and glandular diseases. The child sinks into a low torpid state, wastes away to a skeleton, except the stomach, producing what is called pot-belly. If the children survive this treatment, they are weakly and stunted for life." This is a true description of scrofula.

**Treatment.**—It should be remembered, in the first place, that scrofula being a chronic disease and of inveterate character, it can never be cured rapidly. If it can be cured by a long and persevering use of the appropriate measures, we should be thankful for our success.

But before proceeding to speak of the remedial means which hydrophathy holds forth in this disease, let us see what can be said in favor of drug medicaments.

Drs. Bigelow and Holmes, of Boston, in their edition of Dr. Marshall Hall's work on the "Theory and Practice of Medicine," make the following appropriate remarks on this subject: "In the constitutional treatment of scrofulous affections in general, a great variety of specific remedies, the use of which has seemed to originate in the hypothetical and frequently chemical opinions of their advocates, have been employed. Alkalies, acids, lime-water, salts, earthy and metallic, chalybeates, vegetable tonics, in their respective turns, have raised and disappointed expectation. Iodine, from the reputation it has acquired in bronchocele, holds at present a doubtful supremacy among the remedies which are used for this disease. But we are sufficiently satisfied that no single remedy is entitled to reliance for the removal of constitutional taint. If the general vigor of the system can be sustained, and the healthy performance of the functions promoted for a certain period, the patient may outgrow a malady which specific medicines do not exterminate. Hence the open air, regular exercise, light, wholesome, nourishing food, sufficient clothing, the shower-bath, and especially sea bathing, are followed in a great many cases with renovation of the general health, and diminution and final disappearance of the scrofulous symptoms. We have known a sea voyage to heal scrofulous ulcers of bad character, which had resisted years of medical treatment."

According to Dr. Cullen, mineral waters of every description have been had recourse to in scrofula, chalybeate, sulphurous, and saline, and with nearly a like reputation; but, as this author observes, "*if they are ever successful, it is the elementary water that is the chief part of the remedy*," which, as he remarks in another place, "*may be of use by washing out the lymphatic system*."

Respecting the use of mercury, which has from time to time been highly recommended for scrofula, Dr. Good observes: "Salivation has always done harm, and on this account mercury in every form must be given in minute doses. Combined with some preparations of antimony, and particularly with the precipitated sulphuret, as in Plummer's pills, it is said to have been chiefly serviceable. *But in my own practice I have not found this medicine of any manifest service in this disease.*"

The same author further observes: "Of the specific benefit of narcotics, as hemlock, henbane, foxglove, solanum, asclepias, vincetoxicum, and many others, I have yet to be persuaded. \* \* \* *I can conscientiously say with Dr. Cullen, that they have often disappointed me, and have not seemed to dispose scrofulous ulcers to heal.*"

Such being the opinions of some of the most learned of the medical profession, and I may add of the better part of the profession generally, the reader, I think, will not be prepared to place much confidence in drugs for curing this disease. With regard to the proper plan of managing scrofula, much is to be inferred from what has been said in the foregoing remarks concerning the causes of the disease. The patient is to be put into the best possible health conditions throughout. Food, air, clothing, temperature, cleanliness, the regulation of the passions—all of these are to be taken into the account.

The general treatment should be tonic and purifying, that, in short, which is best calculated to restore and preserve the general health. All of the hydropathic appliances come into play, according to the strength and power of endurance in the case.

The management of local parts is also to be conducted on general principles. In swellings we are to proceed according to the degree of heat. The same also is true of ulcers and the like. In general the stimulating compresses are the most appropriate, because the disease is seldom attended with high vascular excitement.

The diet in scrofula, as in all diseases of debility, should be of a mild, unstimulating, but sufficiently nutritious kind. Milk is suitable for young children, and for adults, perhaps, in some cases. But it should ever be remembered in connection with this and all similar diseases, that the farinacea and fruits are much less *putrescent* in their tendency than animal substances, of whatever kind.

It is proper to notice in this place a so-called form of disease, frequently spoken of at the present day, called *marasmus*. The term signifies a wasting away of the body generally, without any particular local affection. This condition is doubtless often caused by or connected with scrofula. The general plan of treatment for marasmus should be the same as that for other scrofulous disorders.

The affection denominated *tabes mesenterica* (scrofula or tubercles of the mesenteric glands) is also of the same class. It consists in an engorgement and tubercular degeneration of the mesenteric glands, followed by emaciation, and general disorder of the nutritive functions. It is seen for the most part in children of the scrofulous diathesis, and especially among such as are weaned too early, and are kept on improper food. The more important symptoms of the affection are

anorexia, or immoderate appetite, emaciation, hardness and swelling of the abdomen, and in the end diarrhea. It is, in general, fatal. The treatment is the same as for scrofula generally.

#### CANCER—CARCINOMA—CARCINUS.

The Greeks called this disease *carcinus*, which means a crab, the tumor exhibiting large blue veins, running in different directions, like the claws of a crab. The Romans called it *lupus*, because it eats away the flesh like a wolf. Dr. Cullen defines cancer to be "a painful, scirrhus (hard) tumor, terminating in a fatal ulcer. It may affect any part of the system, but is more apt to locate upon the glandular structures. In men it most frequently seizes the tongue, mouth, or genitals; in women, the breasts or the uterus; in children, the eyes. A cancerous tumor is said to be *occult* when in its hard or scirrhus state, and *open* when ulceration has commenced.

Before and at the time of cancer there is a state of ill general health; the appetite is variable, and the digestion imperfect; the patient languid, depressed, and emaciated; the complexion leaden and sallow. Its causes may be considered as being the same as those of scrofula. Cancer of the lips, tongue, and mouth, it should be remembered, we have on the best authority, are often caused by *tobacco*. Such surgeons as Dr. Warren, of Boston, and Mussey, of Cincinnati, have given us the facts. Could we have a stronger argument against the use of this abominable weed?

*Symptoms and Progress.*—Cancer is thus described by Mr. Pearson, an English writer of eminence: "A hard, unequal tumor, that is indolent and without any discoloration of the skin, is called a scirrhus; but when an itching is perceived in it, which is followed by a pricking, shooting, or lancinating pain, and a change of color in the skin, it is usually denominated a cancer. It generally is small in the beginning and increases gradually, but though the skin changes to a red or livid appearance, and the state of the tumor from an indolent to a painful one, it is sometimes very difficult to say when the scirrhus really becomes a cancer, the progress being quick or slow, according to concurring causes. When the tumor is attended with a peculiar kind of burning, shooting pain, and the skin hath acquired a dusky, purple, or livid hue, it may then be deemed the malignant scirrhus, or *confirmed cancer*. When thus far advanced in women's breasts, the tumor sometimes increases speedily to a great size, having a knotty, unequal surface, and more glands becoming obstructed; the nipple sinks in, turgid veins become conspicuous, ramifying around, and resembling a crab's claws. A cancerous tumor never melts down in suppuration

like an inflammatory one, but when it is ready to break open, especially in the breast, it generally becomes prominent in some minute point, attended with an increase of the peculiar kind of burning, shooting pain, felt before at intervals, in a less degree, and deeper in the body of the gland. In the prominent part of the tumor in this state, a corroding ichor sometimes transudes through the skin, soon forming an ulcer; at other times a considerable quantity of a thin, lymphatic fluid, tinged with blood from eroded vessels, is found on it in ulcers of the cancerous nature."

*Treatment.*—This is naturally divided into the *preventive* and the *curative*. The disease appears to have a great tendency to communicate itself from parent to child. Children, born of cancerous parents, therefore should be managed in the best possible ways, for in no disease probably does more depend upon what we do than in this.

The constitutional treatment for cancer, both as regards prevention and cure, is the same as for scrofula, or any other morbid taint of the system. All the means to be found in bathing, attention to out-door exercise, cleanliness, and especially diet, should be brought to bear. That the vegetarian plan of living is a most powerful auxiliary in warding off this dreadful disease, there is abundant proof.

Should cancerous growth be removed, either by caustics or the knife? This is an important question, and one on which hydropathists even appear to be divided. I must admit that I am prejudiced against interfering with cancer in this way, because, in my opinion, if the disease is removed in one part by such measures, it is more apt to appear in another and a more important part. I may be mistaken in the matter, but with my present convictions I should not, if a sufferer in this way, be willing to submit to any thing of the kind. The hunger-cure, in my estimation, would be a much better method.

That strict vegetarian diet has in some cases cured cancer there can be no doubt; and Dr. Lambe has well shown the effects of exclusive vegetable food and distilled water in mitigating this disease. Of course pure soft water, however obtained, will answer the purpose. I advise the reader not to fail in making himself acquainted with Dr. Lambe's work, which is published by Messrs. Fowlers and Wells, of New York, at a price that comes within the reach of all.\*

That form of cancer denominated *fungus hematodes* demands a passing notice in this place. The term signifies *bloody fungus*. It is sometimes called *soft cancer*, *medullary*, *sarcoma* or *cancer*, *spongoid inflamma-*

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\* Water and Vegetable Diet in Consumption, Asthma, Scrofula, Cancer, etc. By William Lambe, M. D. Fowlers and Wells, New York.



*tion, encephaloid tumor*, etc. It assumes a variety of forms, and may, like common cancer, attack any part of the body, but more especially the extremities, eyes, testis, and breast. "It begins," observes Dr. Hooper, "with a soft enlargement or tumor of the part, which is extremely elastic, and in some cases very painful; as it increases it often has the feel of an encysted tumor, and at length becomes irregular, bulging out here and there, and insinuates itself between the neighboring parts, and forms a large mass, if under an aponeuretic expansion. When it ulcerates it bleeds, shoots up a mass of bloody fungus, and then shows its decided character if unknown before."

With regard to the *treatment* of this distressing affection, it is admitted that drugs are of no avail. Extirpation, according to the old modes, is the only resort. Its hydropathic management is the same as that for cancer proper—hunger-cure, pure soft water and vegetarian diet coming in as the greatest of all palliative helps

## CHAPTER XVII.

### OF TUMORS, SWELLINGS, ULCERS, AND ABSCESSES.

#### TUMORS.

A TUMOR is a morbid swelling or growth within or upon some part of the living system. Tumors differ greatly according to their seat, nature, size, etc.

Of these morbid growths there are reckoned three great or leading species, of which there are many subdivisions. These species are the *sarcomatous tumor*—*emphyma sarcoma*; the *encystal tumor* or *wen*—*emphyma cystis*; and the *bony tumor*—*emphyma exostosis*, each of which are again subdivided into various species.

Of the *sarcomatous* species—(following the order of Dr. Good) there are:

1. The *fleshy tumor*—*carnosum*—which is vascular throughout, with texture simple, and when bulky, mapped on the surface with arborescent veins. It is found over the body and limbs generally.

2. The *adipose tumor*—*adiposum*—which is suety throughout, inclosed in a thin capsule of condensed cellular tissue, and connected by minute vessels. It is found chiefly in the fore and back part of the trunk.

3. The *pancreatic tumor*—*pancreaticum*, which exists in irregular masses, connected by a loose fibrous substance, like the irregular masses of the pancreas. It is found occasionally in the cellular substance, but more usually in convoluted glands, and chiefly in the female breast.

4. The *cystose tumor*, or *Derbyshire neck*—*cellulosum*—in which the cells are oval, currant-sized or grape-sized, containing usually a serous fluid, but sometimes a caseous substance. It is found mostly in the thyroid gland, that is, upon the neck, but sometimes in the testis or ovarium.

5. The *scirrhus tumor*—*scirrhosum*—which is a hard, rigid, and vascular growth, indolent in character, and sometimes shrinking and growing more dense. It is found chiefly in glandular structures of the secernal system.

6. The *mammary tumor*—*mammarium*—which is of the color, and

assumes the character of the mammary gland. It is found in various parts of the body and limbs.

7. The *tuberculous tumor*—*tuberculosum*—which is formed of round and clustering tubercles, pea-sized or bean-sized, of yellowish or brownish-red color, and often ulcerating with a painful, malignant, and often fatal sore. It occurs mostly about the neck.

8. The *medullary tumor*—*medullare*—which is of a pulpy or brain-like appearance, usually whitish, but sometimes reddish or brown, and when large, is apt to produce a sloughing, bleeding, and highly dangerous sore. It is found in different parts.

Any of the foregoing varieties of tumors may grow to an enormous size, even to one hundred pounds, and more. In general they are not accompanied with pain in the earlier stages, but as they grow older and increase in size they often inflame and ulcerate, and gradually wear away the patient's life. The scirrhus, tumor, in particular, has a great tendency to form a cancerous ulcer, which is one of the most painful and most to be dreaded things we can conceive of.

The most unsightly of these growths is that of *bronchocele* or *goitre*, or *Derbyshire neck*,\* as it is called in England. It is supposed to be more common in mountainous and damp regions, is seen principally among the poor, and more frequently among females than males. It commences without pain or discoloration of the skin, presenting a general prominence on the fore part of the neck. Afterward the skin grows yellowish, and the veins of the part become enlarged and varicose. Surgeons are seldom willing to undertake the removal of the

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\* This disease (sometimes called "cretinism") simulates rickets in some respects, with the exception that the mental faculties take on the general debility of the system. It is found frequently in the valleys of Switzerland, and the Alps generally. It affects the lower classes mostly, and the patient is usually idiotic. The unfortunate sufferer in this disease is little better than the animals about him. Cretins seldom live to an advanced age. The disease is often hereditary.

"On the first discovery of cretinism," observes Dr. Good, "it was ascribed by some to the use of snow-water, and by others to the use of water impregnated with calcareous earth; both which opinions are entirely without foundation. The first is sufficiently disproved by observing that persons born in places contiguous to the glaciers, and who drink no other water than that which flows from the melting of snow and ice, are not subject to the disorder; and that Sir John Pringle and Captain Cook found melted snow or ice-water afford to seamen a peculiarly wholesome beverage; while, on the contrary, the disorder is observed in places where snow is unknown, as at Sumatra. The second is contradicted by the fact that the common waters of Switzerland, instead of being impregnated with calcareous matter, excel those of most other countries in Europe in purity and flavor."

A more plausible theory in regard to the cause of this singular affection is, that in the valleys where it exists the soil is usually marshy, and the atmosphere damp, close, and oppressive. Besides all this, the inhabitants live in the most miserable, dirty, and unventilated huts, and on the poorest of fare. There being, too, an hereditary predisposition to the affection, it is more liable under all these unfavorable influences to be kept up.

mass under such circumstances, and even puncturing a tumor of this kind is not unattended with danger. If it is mistaken for an abscess, as has sometimes been done, and the part is opened, a severe hemorrhage may follow, which has in some cases proved fatal.

Singular as it may appear, bronchocele has sometimes been cured spontaneously. Dr. Good gives an instance of this kind, which happened in a young lady whom he attended. She had for six or seven years, as this author informs us, been successively under the care of the most skillful physicians and surgeons of London, but the protuberance grew much larger and more unsightly in spite of frictions, blisters and setons, mercury in every form, the alkalies, hemlock, and hyoscianus employed jointly or alternately, and in almost every proportion through the whole of this period. The distended skin at length gave way in various places, and a thin fluid issued from the foramina. This natural discharge was encouraged, and the sack by degrees exhausting itself, the tumor as gradually diminished, and at length completely disappeared.

It is always advisable to commence the treatment of a tumor as soon as possible after it is observed. Frictions with the hand wet in cold water are of service in scattering the growth, and the stimulating compress should be kept up unremittingly. If, however, there is heat in the part, the cooling compress will be the more suitable until the heat is removed. The skin should be kept in the best possible condition by frequent ablutions and washings, especially by the use of the *abreibung*, and the general health should be carefully attended to in all respects.

The SECOND SPECIES of morbid growths of the kind under consideration, according to the same authority, is the *encysted tumor* or *wen—emphyma encystis*. Its varieties are:

1. The *steatome—steatoma*—or *adipose wen*, in which the encysted extuberance contains a fatty or suety substance, apparently secreted from the internal surface of the cyst. It is found over most parts of the body, and may be from the size of a small bean to many pounds in weight.

2. The *atherome—atheroma*, or *mealy wen*, which contains a mealy or curd-like substance, but sometimes intermixed with harder corpuscles. It is found of different sizes and over most parts of the body.

3. The *honeyed wen—melliceres*, containing a honey-like fluid, and occurring over most parts of the body.

4. The *ganglionic wen—weeping sinew*, which fixes itself upon a tendon, and contains a colorless fluid.

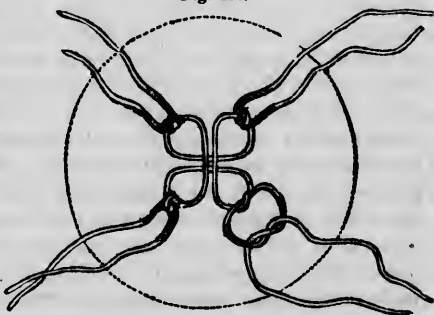
5. The *horny wen—testudo*, which contains a fluid that readily hardens into a horn or nail-like substance.

6. The *complicated cyst—complicatus*, which is circumscribed, but incorporated with the surrounding structure, partly solid, partly fluctuating, large, but usually not painful in pressure, or accompanied with constitutional disturbance. Found chiefly upon the breast.

Tumors of the encysted variety are probably not often cured, except by removing them with the knife or the ligature. Rupturing the cyst

Fig. 186.

is useful in some instances, and friction and pressure likewise answer a good purpose, if employed perseveringly and in season. There are cases on record in which great abstinence has removed them; the adipose variety being more easily operated upon in this way.



LIGATURE FOR TUMORS.

Electricity or electro-magnetism is doubtless a valuable remedy in this as in other kinds of tumors that are not attended with a high degree of inflammation. There is a case on record given by Dr. Eason of Dublin, in which a hard tumor was removed from the breast of a woman who was struck to the floor and for some time deprived of the use of her limbs by a stroke of lightning. It was observed to be much softer almost immediately after the accident, and in a short time totally disappeared, though it had for a long time resisted the power of every application that could be thought of.

The **THIRD SPECIES** of tumors, the *bony tumor—emphyma exostosis*, constitutes four varieties. These are:

1. The *osteus tumor—ostea*, seated on a bone, and consequently immovable.
2. *Node—periosteal*, a bony enlargement of the periosteum, and consequently immovable.
3. *Pendulous exostosis—pendula*, which is a bony tumor, that hangs pendulous within or about a joint.
4. *Exotic exostosis—exotica*, a bony tumor, movable or immovable, and seated in some fleshy part of the body.

Bony tumors are in general incurable when they have proceeded to any considerable extent, except that those which are loose may sometimes be removed with the knife. Frictions, stimulating bandages, and all similar means may prove useful in the earlier stages of these

growths. The reader is also referred to what is said in another place on the subject of *nodosity*.

Although much has been written on the subject of tumors, cases are yet even now and then found which can not be classified under any distinct head. Such, at least, is true in the present state of medical science.

One of this nameless kind of tumors is well described by a recent and able writer on surgery, Mr. Syme, professor in the University of Edinburgh. It is not unfrequently met with, according to this writer, in both sexes at the time of life when youth is passing into maturity, and also, though more seldom, at both earlier and later periods. It generally occurs on the trunk, and especially on the dorsal region. The structure is usually white and somewhat fibrous-looking, but sometimes can hardly be distinguished from the adipose formation, from which, indeed, it has been found to differ only in having a slight admixture of cellular substance, rendering it more white and firm. There is at first no pain or other unpleasant symptoms, and the patient usually retains good general health. The operation for removal is readily undertaken under these circumstances, and is executed without any difficulty or immediate bad consequence. But very soon after the wound is healed, another growth, or more frequently several of the same kind appear in the neighborhood; and if these be removed they are speedily succeeded by new productions, of which the consistence is harder or softer, the enlargement more rapid, and the distinction from neighboring parts less complete. They also become painful and inclined to ulcerate and fungate, and finally prove fatal to the patient.

I shall in the next place notice several kinds of morbid productions, swellings, etc., which are not properly included under the foregoing heads

#### WHELK—IONTHUS.

Ionthus signifies "a violet or purple eruption or efflorescence." It includes "all those firmer or indurated pimples, of whatever description, unconnected with fever, and having a subcutaneous base, with which the face is often disfigured, whether solitary, gregarious, or confluent."

There are two species of the disease: *Stone-pox*, in which the tumor is hard, red, pimply, distinct, gregarious, sore to the touch, and sometimes oozing some fluid at the top; and the *carbuncled face* or *rose-drop*, called also *grog-blossoms*, *rum-blossoms*, *grog-roses*, *cider-buds*, *bottle-noses*, etc., in which the tumors are confluent, mottled with purple, and for the most part appearing on the nose.

Stone-pox is often caused by irregularities of the stomach, or, in other words, a bad state of the digestive function. It may also be brought on by a sudden chill, whether contracted by eating, drinking, or otherwise, when the body is fatigued.

Stone-pox is frequently a very obstinate complaint, bidding defiance to remedies of whatever kind. A severe fever sometimes removes it, and at other times it ceases spontaneously. It is more common with young persons, and matrimony often appears to effect a change in regard to it. The great thing, however, is to restore the general health. The diet should be of the purest kind.

In the second species of whelk, intemperance being its common cause, the remedy is obvious. It is not possible to cure every case, but if the disease can be kept from taking on a malignant form, it should be a source of satisfaction to such as have lived in a long course of intemperance and abuse.

#### NEVUS.

This affection consists in an enlargement of many small arteries, which form a kind of tumor having the character of erectile tissue. It appears more commonly soon after birth, as a small, red, shining spot upon the skin. In some cases it remains stationary, but more commonly the growth enlarges, forming a "soft, dusky red and pulsatory tumor, the skin covering which is so exceedingly thin, that profuse bleeding may occur from the slightest abrasion." Nevus is also liable to ulcerate and slough away, in which case the patient is very liable to be carried off by hemorrhage.

*Treatment.*—There are two kinds of measures resorted to by surgeons in this affection: first, such as act by obliterating the distended vessels; and second, extirpation. In reference to the first of these, an able surgeon, Druitt, observes: "If the red spot of incipient nevus in infants is frequently well rubbed with nitrate of silver, it will very often disappear. (Nitrate of silver thus applied, does not harm the constitution generally.) If a nevus is small, an attempt may be made to excite the adhesive inflammation in it by performing vaccination on its surface, which generally fails; or by passing a *seton* through it, taking care that the threads are large enough completely to fill the aperture made by the needle; or by *breaking up its substance* with a red-hot needle; or by *injecting* a weak solution of the sulphate of zinc into it by means of Anel's syringe; or by *pressure*, if it be seated over a bone; or by the application of the concentrated or sulphuric acids. But all of these means are very uncertain. The *seton* is the best of these, and may be resorted to when it would be dangerous

to attempt extirpation. Moreover, the operation of injecting a nevus with an irritating fluid, has been known to cause the instant death of a child by convulsions." The reader will thus perceive how necessary it is to be cautious in the surgical management of such cases.

The better plan, as a general rule, in nevus, is the entire extirpation of the tumor. This is done either by the knife or ligature. In the former method, two elliptical incisions are made in such a way as to include the whole of the morbid growth, and a little of the sound flesh around. "It can not be too forcibly impressed on the mind of the surgeon," says Mr. Guthrie, an able practitioner, "that if the diseased part be cut into, the bleeding will be terrific and difficult to stop."

Fig. 137.



The ligature is considered a safer and better method. Two or three needles are passed crucially through the base of the tumor, and then a strong silk or linen ligature is passed round and beneath them, and tied firmly; or, instead of this, Mr. Druiitt recommends that two or more double ligatures be passed through the base of the tumor, with a curved needle which has its eye at its pointed extremity, and then the tumor may be strangulated by tying the adjacent threads together. The tumor may be

punctured before the threads are finally tightened, but in every case the constriction should be made as tight as possible. If the skin is not implicated, it may be dissected back (see fig. 137) before the ligatures are passed.

#### ANEURISM

The term aneurism signifies "a sac filled with blood, and communicating with an artery, by the rupture or dilatation of which it has been produced."

There are usually reckoned three varieties of this affection: *true aneurism*, which consists of a sac formed by one or more of the arterial coats; *false aneurism*, which occurs after a puncture of an artery, and consists of an accumulation of the adhesive lymph by which the wound united; and *diffused aneurism*, which is formed when an artery is lacerated by a fractured bone, or ruptured by a blow without a wound in the skin, or when an artery is punctured, and the wound in the skin heals up speedily.

Aneurism is often a fatal disease. As the tumor enlarges, it carries



so to say, every thing before it. Even bone is absorbed by the pressure thus caused. When it reaches the skin, inflammation takes place, and finally sloughing, which by opening the coats of the blood-vessels, causes fatal hemorrhage. This sometimes happens in a gush, destroying life at once, as it were; but in other cases the blood oozes away more slowly, but in the end causing the same result. Sometimes also aneurismal tumors cause death by their pressure upon the trachea or esophagus, and without bursting.

*Causes.*—Strains and violent exertion of the body in any way may cause aneurism. Men are more subject to it than women, because they are more apt to be injured in this way. Those who use the upper extremities most, are more liable to axillary aneurism, while those who exert the lower limbs most are more liable to popliteal aneurism. Violent mental emotion, it is believed, may also cause this disease.

*Symptoms.*—The tumor wherever seated pulsates like an artery, and if the artery above it is compressed, it renders the tumor flaccid on pressure, but when the artery is left free the blood at once returns to it with a peculiar thrill. Aneurism in the chest is known by an unnatural pulsation felt in the part, and in the abdomen it may be discovered through its walls.

*Treatment.*—It is a striking evidence of the power of nature, that this affection is sometimes cured spontaneously. This, according to Mr. Druitt, may occur: 1st. In consequence of the coagulation of the blood contained in the sac, and the conversion of the mass into a firm tumor. In some cases, however, the sac does not become quite obliterated, but the coagula becomes thick and firm enough to resist further distention. Nature generally endeavors to aid this process by enlarging the collateral circulation, and by setting up the adhesive inflammation, so as to thicken the artery and obstruct its current. It has happened that a portion of the clot has been detached from the interior of the sac by some accidental violence, and has effected a cure by blocking up the opening into the aneurism. 2d. The aneurism has sometimes sloughed, or has been involved in a large abscess, and the artery participating in the inflammation has become obstructed by effusion of lymph, or by coagulation of blood in it. 3d. The artery has become obliterated by an accidental pressure of the aneurism upon it; or by the pressure of blood escaping from it on its bursting into the cellular tissue, as sometimes happens.

The surgical treatment of aneurism consists in the application of pressure, ice, etc., to the tumor or the artery that feeds it. But such methods, it is believed, do harm oftener than good. The ligation of the vessel between the tumor and the heart is often resorted to suc-

cessfully, although there is some danger attending the operation. Thus when the circulation is cut off from a limb, mortification may take place, which in turn gives occasion for another painful operation—that of amputation. In tying the artery, the custom is to dissect down to the vessel, and after having found and separated it from the adjoining parts, the blunt end of an aneurismal needle (fig 138) armed with a

Fig. 138.



ARMED NEEDLE FOR LIGATING AN ANEURISMAL ARTERY.

ligature is passed under it, and thus the vessel tied. In some cases the vessel has been tied with success below the tumor, when it could not be applied above.

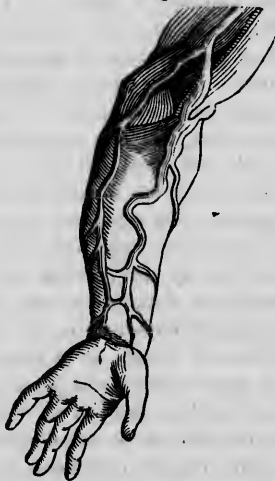
*Varicose aneurism* is that which occurs when an artery has been punctured through a vein, a false aneurism forming between them, and opening into both. (See fig. 139.) This kind of aneurism should not be interfered with unless it enlarge rapidly, in which case the ligature must be placed both above and below the tumor.

Fig. 139.



VARICOSE ANEURISM.

Fig. 140.



ANEURISMAL VARIX.

*Aneurismal varix* (see fig. 140) is likewise produced when an artery has been punctured through a vein, as in the operation of bleeding,

the parts adhering, and the communication between the artery and the vein remaining permanent. In such case the vein becomes enlarged and tortuous, and vibrates somewhat like an artery. If the disease is not very troublesome, it should not be meddled with, except so far as the general health is concerned.

With regard to general management in all kinds of aneurism, the patient should live in all respects the most even and equable life, physically, mentally, and morally. All excitements, whether of body or mind, should be sedulously avoided, since they perturbate the circulation, and under such circumstances endanger life. The diet should be plain and rather spare, and the bathing of a mild kind.

#### SWELLED VEINS—VARIX—VARICOSE VEINS.

Veins, like other parts of the living body, are subject to debility and disease. One of the most frequent forms of disease of the veins is what is termed varix—a swollen state of these vessels. It manifests itself more frequently in the lower parts of the system, such as the scrotum, rectum, and lower limbs, because by gravity the blood has a tendency, where there is debility present, to stagnate in the more dependent parts.

*Causes.*—Any thing which tends to debilitate the body is liable to become a cause of varix. Persons of lax, weakly fiber are always most subject to this ailment. Undue fatigue, standing too much upon the feet without moving about, costiveness, strains, cramps, and pressure may induce it. In pregnancy, varix often comes on because the fetus presses upon the large veins, running up from the lower extremities and preventing the free flow of blood toward the heart. This, of course, is not a necessary condition of pregnancy; it happens only with those of enfeebled health. In a healthy person, although there might be pressure upon the veins by the fetus, yet the coats of the vessels would have tone sufficient to overcome the obstacle.

When varix happens upon the lower extremities, the whole leg is apt to become more or less covered with a network of the swelled veins, which run in every direction, causing the limb often, and especially toward evening, to be enormously swollen, heavy, and painful. In this state of things the vein sometimes bursts, a large quantity of blood being lost suddenly. Ulcers are likewise very liable to form, which it is almost if not quite impossible to heal.

*Treatment.*—The best remedy perhaps, in all cases of varix, is pressure, provided it can be properly applied. This should be made in a steady, uniform manner, and not in such a way as to give pain or uneasiness when it is applied. For the lower limb, one of the best methods

is to apply a laced or India-rubber stocking. This, if it fit properly, is an admirable remedy. A roller or bandage is also a good application, and has the advantage of being so cheap that it is within the reach of all, which is not true of the stocking. The roller should be long enough when applied, to extend from the foot to the hip, and should also be passed two or three times about the body, to insure its remaining in the proper place upon the limb. Cotton cloth may be used for the roller, but flannel, being more elastic, is considered best. Both roller and stocking should be put on before the patient goes about in the morning; in bad cases, before he assumes the erect posture. Showering the limb with cold water is an excellent adjunct in the treatment. In many cases no doubt, if this were practiced sufficiently early and perseveringly, a cure would be effected. Dr. Good speaks of it as being "not unfrequently a very efficacious remedy" in the beginning of the disease.

Surgeons sometimes attempt to cure varix by obliterating the vein. This is done in different ways, but generally fails of its object.

When an enlarged vein bursts, a considerable amount of blood may be lost in a very short time. In such cases the patient should at once lie upon his back, and, if practicable, should have cold water poured over him, just as we would to arrest any other hemorrhage. At the same time some one should place a finger upon the bleeding spot, and after the hemorrhage is somewhat checked, a small pad of lint should be bound upon the bleeding orifice and made fast. The patient should be careful not to go about too soon.

#### SPERMATOCELE—CIRSOCELE—VARICOCELE.

This disease consists in a varicose state of the veins of the scrotum and spermatic cord. In some cases the part becomes pendulous and heavy, making it difficult for the patient to walk much, and the back may also sympathize in the weakness. Patients with this disease are apt to become low-spirited, wishing often for the surgeon to operate upon them. The better way, however, in the vast majority of cases is to let all such treatment alone; to attend to the general health in the best manner, and to wear a suspensory bandage, which can be obtained at any surgical-instrument maker's, and of most physicians. I repeat, keep clear of the surgeon's knife in these cases.

#### FURUNCULUS, OR BOIL.

In this familiar disease there is in the beginning some degree of hardness, or a sort of tender knot to be felt under the skin, which soon increases in size, till it becomes as large as a pea, hazel-nut, or walnut, as the case may be. The swelling becomes more and more painful by

degrees, and usually in a period of from the third to the ninth day it assumes a conical form, the apex becoming yellow-looking, as if matter were formed. Soon after this the skin gives way, if the patient had not previously opened it, and one might think from its appearance that the boil was now on the point of discharging freely and getting well. A small quantity of bloody matter only, however, oozes forth at first, leaving a *core* behind which is much larger than the opening. In three or four days more this is discharged, after which the boil soon gets well.

It is an old notion, and no doubt a true one, that it is healthy to have boils. They often occur when a patient is recovering from an attack of small-pox, scarlatina, measles, whooping-cough, etc., and more especially if the water-treatment has been practiced. The occurrence of boils in the use of water is one of the best evidences of its good effects, for when we find the patient made better by it, boils are apt to make their appearance. They are an evidence, under such circumstances, that the internal organs have become invigorated, so that they have power to throw the morbid matter farther from the vitals upon the surface. Hence it should not be our object to endeavor to prevent boils when they make their appearance, but rather to encourage them.

A *stye upon the eye* is one of the most familiar illustrations of a boil. A stye is sometimes an unpleasant "comforter," but is still to be regarded as a favorable omen.

*Treatment.*—A great variety of remedies have been proposed for this affection; plasters, ointments, washes, and applications without number have been resorted to in order to modify or check the disease. In cases of large boils, it has often been deemed necessary to give powerful opiates to relieve the pain. We have great reason, however, to believe that in all such cases, although present relief is often obtained, it is at the expense of greater suffering in the end; and according to all good authority, it is better to avoid the use of poisons whenever it is possible to get along without them.

The water-dressing, that is, applications of wet linen, frequently renewed, and kept at a temperature which is most agreeable to the feelings, is, beyond doubt, the best local remedy we have for boils. Dr. Macartney, in his work on inflammation, however, carries his recommendation of the water-dressing too far when he supposes *that we have boils completely under our control by its use*. Still, water is so much better, and more salutary in every respect, than any other application with which we are acquainted, there is some excuse for a too high laudation of its virtues. It is true that if the boil is in such a place that the wet applications can be kept well upon it, as well also as upon

the surrounding parts, the pain and constitutional disturbance can be, to a great extent, kept in check. Much depends upon having the surrounding parts, as well as the boil itself, kept under the influence of the watery application.

If the season of the year is cold, flannel may be used over the wet linen, in order to secure a comfortable degree of temperature. Oil silk it is better to avoid, inasmuch as, being an air-tight article, it prevents the escape of matters from the surface that should always be allowed to go on. At most seasons of the year, however, simple coverings of dry linen over the wet will be sufficient. At any time, if the boil is very hot and painful, the wet cloths should be left uncovered, so that by evaporation a great degree of coolness is produced. It is well, also, if the boil is on a part which will admit of the practice, to immerse it often in water of an agreeable temperature—the more indeed the better.

The constitutional treatment should in all these cases be such as to improve the general health. In severe cases it will be necessary for the patient to be kept, or to remain quiet within doors. In no case should the body be overheated by too much exercise; a medium course should be observed.

General ablutions in water, tepid or cold, according to the season of the year, and the patient's strength, will be found highly serviceable. The wet-sheet pack is also an invaluable means. It will surprise any one who is not acquainted with matters of this kind, to witness the salutary effect of these general applications upon the affected parts. A tepid bath simply will often relieve pain and irritation to a degree which no one who had not witnessed it could believe.

As to opening these tumors with a lancet or other instrument, the practice is generally recommended by surgeons, particularly in case of a large boil. Now if the matter is well formed, and just ready to break out, it is a matter of but small moment to open it; it can do little good or harm. The best rule, however, is not to meddle with boils in this way, but simply to let them open themselves.

In regard to the healing of boils after they have broken, there is nothing in the wide world that can at all compare in efficacy and pleasantness of action to pure water.

*Carbuncle*, or *anthrax*, is only a great boil. What a common boil is on a small scale, carbuncle is in a gigantic way. It is more painful and dangerous than a common boil in proportion to its extent. It consists of "a large, flat, circumscribed, very hard, and very painful tumor, of a purplish-red color, attended with burning heat." It may be three, four, or more inches in diameter; it ends in a deep slough,

destroying the cellular tissue beneath, and the skin above it. It is common for many small openings to form upon its surface, just as a single opening appears on a common boil. These openings, if left to themselves coalesce, and in time discharge the immense core beneath.

Carbuncle is more common in advanced life. Those who have lived in gross habits are most liable to it. It occurs oftenest between the shoulders, and upon the neck and back. But it may happen upon any of the more fleshy parts. Males are the most subject to it. It is in some cases caused by water treatment. In such cases there appears to be no danger if the patient will but persevere, keep up good courage, and hold on in his way.

In treating carbuncle in the common way of surgery, the method is to divide the firm mass into quarters, or several parts, by deep cross-wise cuts. Surgeons are fond of cutting; but Dr. Watson, of London, who is high authority, speaks strongly against this severe operation, although he would probably allow it in some uncommonly severe cases. The great object of the operation is to relieve pain. But there are better modes of doing this, as by large water-dressings, baths, and the wet pack. The treatment should, in short, be managed on general principles, according to the severity of the case.

#### PARONYCHIA—WHITLOW, OR FELON.

The word *paronychia* is derived from two Greek words, signifying near the nail. This name was given anciently to an inflammation seated near this part, generally of the fingers and sometimes of the toes. It may occur quite near the surface, but it is generally found to be situated deeper, and often upon the periosteum, or covering of the bone. The disease is generally known by the name of *whitlow*, or *felon*, the latter being the more common term used, especially when it is severe.

Whitlow appears more commonly about the root or side of the nails, or upon the first joint of the fingers. Sometimes, however, it extends to other parts of these members. Similar affections are also to be found occasionally upon the palms of the hands and soles of the feet. "They break through the skin or cuticle with difficulty, from its thickness, and hence become diffused, and in the latter case separate the cuticle from the skin beneath."

There may be reckoned three varieties of this disease, as follows:

1. *Cutaneous whitlow*, in which the matter is poured forth immediately under the skin.
2. *Tendonous whitlow*, in which the effusion of matter occurs among the tendons; and,
3. *Periosteal or malignant whitlow*, in which the matter is formed immediately upon the bone. In

the *first variety* the pus is poured forth between the skin and the subjacent tendons, but not beneath the latter. In the *second* it insinuates itself among the tendons, and between these and the periosteum. In the *third variety* the pus is formed between the periosteum and the bone, which latter not unfrequently becomes mortified or *necrosed*, as surgeons say. It is to this last and most painful of all forms to which the term *felon* is most appropriately applied, and it is to be regarded as one of the most painful affections to which human nature is subject.

The slighter, and, fortunately, the most common form of whitlow is that which occurs generally at one side or the other of the root of the nail. It begins sometimes as a very trifling inflammation, but at length throbs, after which a whitish or pus-like bladder makes its appearance, extending itself by degrees more or less around the nail. If the skin is thick the swelling is less white; if thin and delicate, the more so. In the slighter cases the matter bursts forth of itself in due time, and here the affection ends. But in other cases the matter rots away the true as well as scarf skin, after which a little red body or excrescence (proud flesh) shoots up, which being held firmly by the surrounding skin and nail, become excessively tender and sensitive to the touch.

In all forms of whitlow, the deeper the matter the more painful the part, and the slower and more difficult to heal.

*Causes.*—Mechanical injuries, such as blows, punctures, etc. It has been caused by the sharp fin of a fish, and especially the cat fish. It comes on oftener, however, apparently without any exciting cause. It appears to attack most those whose general health is not good. Those who are undergoing a course of water treatment not unfrequently experience felons as a crisis. Sailors, fishermen, and gardeners, and all others who work much of the time with their hands wet, are liable to felon, from the water having the effect to draw morbid matter from other parts of the body to that on which it acts.

*Treatment.*—As this is one of the most painful affections to which we are subject, the treatment is no unimportant matter. There is an old woman's remedy which we will first mention, one which is said sometimes to have effected a cure, especially if it is taken early. A vessel of weak lye is placed upon embers or a hot stove. The part affected is immersed in the liquid of a moderate temperature, which is gradually raised to as high a heat as can possibly be borne, so that the part is quite "parboiled." We do not doubt but that such a mode will, in some cases, at once destroy the inflammation. Probably pure water, used without the lye, would be fully as good. But sometimes the in



flammation may go on in spite of all ordinary means. What, then, is to be done? The mode, according to surgery, is freely to open the part. Lay it open for some distance beyond the tenderest part, deep down to the very bone. Thorough work must be made of it the first time, for patients never let us make the second attempt. In some instances, at the urgent request of sufferers, we have resorted to the knife, but we confess we would not allow it to be used upon ourselves; we should prefer keeping the part free from pain, and letting it take its course. We believe keeping it constantly immersed in ice-cold water would form the most effectual means of arresting the inflammation, and preventing its raising to a head; and that this mode is certain to subdue the pain most effectually, every one who has the opportunity may test for himself. This is an affection in which we have a perfect demonstration of the great power of cold water to quell pain. Severe as it may be, we immerse the part in very cold water, when all at once the pain grows less and soon dies away. Keep it thus immersed, taking care to have the water very cold, and the pain does not return. We lately had a case in which a physician's skill had been exhausted, and for days the patient could get no sleep. But by having a large bowl of cold water at his bedside, and keeping his hand immediately therein, he could sleep as well as any one and keeping the bad finger thus constantly cool, he soon got well.

We find also that to immerse the whole hand, leaving the affected finger or thumb out of the water, is, in some cases at least, a better method than to leave it in the water. If we cool the blood well *before it arrives at the painful spot*, it is better than simply to have the water act on the diseased member. Pouring cold water on the arm, and keeping a cooling wet compress upon it, are useful helps in the treatment of felon. The wet compress should also be kept constantly on the painful part. Tepid water, both for immersing the hand and for compresses, alternating with cold, is often pleasant and salutary.

Speaking of the severer forms of felon, Dr. Dewees remarks that "much patience must be exercised and suffering endured before the matter in these cases will find its way to the surface; and sometimes much mischief is done the parts below and around it before this happens. The bones and tendons are killed, and the usefulness of the hand is sometimes destroyed by permitting the complaint to run its course." In the ordinary methods of treatment it has been often necessary to amputate fingers in consequence of the injury done by a felon; but if water treatment is faithfully practiced, I think such a

Fig. 141.



EFFECTS OF FELON

result can but seldom, if ever, happen. At all events, I have had many cases of the disease to treat in the city of New York, and in every case, with one exception, a perfect cure has been the result. Some of these cases, too, have been very severe ones, as much so, I am inclined to think, as ever happen.

At the time of preparing these pages for the press, I have seen an elderly patient, a workman in a machine establishment, who has been kept seventeen weeks from his work by a felon on the second finger of the right hand, I think it is. The finger has been lanced repeatedly, and once cut open from end to end. The first joint has withered away, the second is perfectly stiff, and as far as service is concerned, the member will probably be worse than useless. Thus much for the common mode of treatment in such a case. I have no doubt I could have put the man at his work in less than three weeks, and with a perfectly good finger left.

#### STONE BRUISE.

We do not find any name of this kind in the books, but in the part of the country in which I was reared, we often suffered, and that most severely, from what we termed *stone bruise*. This was in the season of the year when we went barefooted; in other seasons, when the feet were protected by boots or shoes, we never suffered from the affection.

Stone bruise is in fact only a form of felon. It happens generally at the heel, where the skin is thick and hard. It is caused by jumping or stepping too hard upon a stone. It happens oftenest in boys, but I have also known men to have it, but none except such as were in the habit of going barefooted.

*Treatment.*—I have myself suffered many a time in my boyhood days from stone bruise; and when I think how much I suffered, and how I have seen a strong man roll upon the ground and groan with the agony of the disease, I have a great desire that every body, the world over, should know the all-powerful effects of cold water to relieve pain. How much suffering I might have been saved if I could have known what I now do, or if I could, even at the age of eight or ten years, have had access to a good work on Water-Cure.

The treatment of stone bruise should be conducted on the same general principles that have been laid down for felon, to which the reader is referred.

#### MILK LEG—WHITE LEG—PHLEGMASIA DOLENS.

This disease is seen more frequently in the puerperal state. Ordinarily it takes place in from one to five weeks after delivery. It may also occur during pregnancy, and those who have had swellings of

these parts during this period are more apt to be attacked after the birth. Those who lose their children during the period of lactation, or refuse to suckle, are also liable to the affection.

*Symptoms.*—Dr. Hooper observes: "There is a painful elastic swelling of one or both lower extremities, beginning generally in the groin, labia, and thigh, and thence extending downward; characterized by great heat and tenderness, a pale, shining appearance of the surface, and stiffness of the limb. It is commonly ushered in with rigors, with pain in the loins or belly; and is accompanied with fever, thirst, a quick and frequent pulse, headache, nausea, and a furred tongue. The disease sometimes proves fatal, but more commonly subsides in about a fortnight or three weeks, leaving the limb swollen and weak." The attack, however, does not always begin in the way described, but may commence at the middle of the leg, ham, knee, or foot. In either case the symptoms are the same in the end.

*Treatment.*—The orthodox method is "leeches to the most painful parts of the limb; opium in large doses—with calomel, blue pill, or mercury—with chalk, given three or four times a day till the system becomes sensibly affected. If there is much fever, tartar emetic is combined with the opium and calomel." There are, of course, some less important et ceteras. We need not wonder that "the recovery is tardy" under such management. It would make a well person sick, and slow enough in getting well.

Water, the intelligent hydropath can readily understand, is an incomparably better remedy for this *hot* disease than drugs. Such cases would, in fact, get along better—vastly better—without any other treatment than good nursing, than they can with bleeding and these accursed drugs.

Hydropathically, milk leg is managed according to the febrile symptoms. The wet-sheet pack and constant swathing of the leg, sometimes cold and sometimes warm, according to the feelings of comfort, will do wonders in relieving the pain. The patient should not attempt to be up much, or too soon. Tepid ablutions, spare diet, or entire fasting during the violence of the disease are useful. Clysters should also be resorted to frequently.

*Prevention.*—The best part of this whole matter is, that those who live hydropathically will seldom, if ever, be affected with this disease. Possibly a woman of feeble constitution, and who is obliged habitually to overdo in pregnancy or soon after delivery, as many must, might get an attack. But even in such a case hydropathic living would show its good effects, not only in the time of recovery, but in warding off the violence of the disease.

## ELEPHANT SKIN—ELEPHANTIASIS.

In this disease the skin is "thick, livid, rugose, tuberculate, and insensible to feeling, the eyes fierce and staring, and the perspiration highly offensive." It is a loathsome, disgusting, and contagious affection, and because of its magnitude both as to character and length, probably received a great name. Arctæus in describing it says: "It is disgusting to the sight, and in all respects terrible, like the elephant;" and Avicenna affirms that "it renders the countenance terrible to look at, and somewhat of the form of the lion's visage." Hence it has also been called *leontiasis* by some.

There are three species of this disease, the *Arabian*, the *Italian*, and the *Asturian* elephantiasis. In the first, according to Dr. Good, the characters are: "tubercles, chiefly on the face and joints; fall of the hair except from the scalp; voice hoarse and nasal; contagious and hereditary." In the second variety: "tubercles, chiefly on the body and limbs; sometimes desquamating; great tension of the skin; vertigo; burning, lancinating pain in the head; melancholy, at first remitting, afterward fixed; termination in alienation of mind, hereditary." In the third: "tubercles, chiefly on the hands and feet; crustaceous and desquamating; continual tremors of the head and upper part of the trunk; baldness of the scalp as well as other parts; gloom and terror of mind."

Fortunately this disease, which, in many respects is one of the most severe and loathsome that can be conceived of, is unknown in our own country. Hence a detailed account of its characters, prevention, and treatment would be unnecessary in the present instance. In general terms it may, however, be remarked, that an avoidance of its causes, such as filth, bad diet, crowded, unventilated rooms, deep and swampy valleys where the sun's rays can scarcely enter, will be of service in all respects, and that the only rational plan of treatment is that which can be made to tell upon the vigor and purity of the body generally.

## THE MUMPS—PAROTITIS—CYNANCIE PAROTIDEA.

Mumps, or parotitis, is an inflammation of the parotid gland. Dr. Cullen's definition of the disease is "pyrexia, frequently of the typhoid type; redness and pain of the fauces; deglutition and respiration difficult, with a sense of constriction; narrowness of the throat." It occurs most frequently at from six or seven years to puberty, but sometimes later in life. It is thought by some to be contagious; but it occurs usually but once in the same individual. Exposure to cold, scarlatina, and other febrile diseases are supposed to be capable of bringing it on.

*Symptoms.*—One only, or both of the glands concerned may be affected at a time. There are slight febrile symptoms at first, attended with some degree of pain in moving the jaw. The swelling extends by degrees to the cheek and region of the lower part of the ear, and downward to the submaxillary gland. The disease lasts usually only from three to four days, when it begins to subside. Toward its decline it is liable to be attended with an inflammation and swelling of the breasts in women, and of the testes in men. In some of these cases, if badly managed, the parts shrivel away to a mere nothing as it were.

*Treatment.*—In general little or no treatment is required for mumps; but if the inflammatory symptoms become severe, the case is to be managed, both locally and generally, on general principles. Cold applications to the swelling are generally most grateful and the best; but warm fomentations may also be used. The affection of the genitals is attended with no danger, as we may say, although it is often regarded as a very serious affair.

It sometimes happens that the brain becomes inflamed in mumps. In this case, the affection is to be treated like any other inflammation of the part.

#### ULCERS AND ABSCESES.

ULCER or SORE signifies “a solution of continuity in the soft parts of longer or shorter standing, and kept up by some local disease or constitutional cause.”

Richeraud makes four great distinctions between a wound and an ulcer. 1. A wound arises from the action of an extraneous body—the cause of an ulcer is inherent in the economy. 2. A wound is always idiopathic—an ulcer is always symptomatic. 3. A wound has essentially a tendency to heal, because the action of its cause has been momentary—an ulcer, on the contrary, has a tendency to enlarge, because its cause persists. 4. The treatment of a wound is surgical—that of an ulcer medical as well.

A great variety of ulcers are spoken of in medical works. Thus we have the *simple, sinuous, fistulous, fungous, gangrenous, scorbutic, syphilitic, cavernous, inveterate, scrofulous, phagadenic, virulent, cacoethic, sordid, carious, varicose*, etc.

Ulceration is said to be *inflammatory* when a considerable degree of heat is present in the affected part. *Congestive* ulceration is such for, example, as occurs on the legs of old dropsical subjects. It is more slow than the former. There is also a combination of the two; *i. e.*, cases may be observed in which the characteristics of neither are prominent.

*Mortification, gangrene, or sphacelas*, is the product of a slow ulceration, causing the death of the part. It is common upon the toes of old inebriates.

Of the several parts of the living body, the parts most liable to ulceration are the skin, and the mucous and synovial membranes. The cellular tissue likewise ulcerates easily, but muscles, tendons, ligaments, blood-vessels, and nerves much more slowly. Cartilage, bone, and the cornea are in some constitutions very liable to it.

"The *constitutions* most liable to ulceration," observes Dr. Druitt, "are those which are debilitated by intemperance or privations; tainted with syphilis or scrofula, or broken down by the excessive use of mercury."

"The *parts* most disposed to it," according to the same able writer, "are those whose circulation is most weak and languid, such as the lower extremities, and more especially if the return of thin venous blood be in any way impeded by a varicose state of the veins. On this account tall persons are much more frequently affected with ulcers of the legs than the short. Sir E. Home shows, on the authority of Dr. Young, that twenty-two out of one hundred and forty-five tall men, and only twenty-three out of two hundred and seventy-six short men, were discharged from a regiment in the West Indies in four years on account of ulcers."

*Causes.*—From the foregoing remarks it will be inferred that ulceration arises in general from bad health. There is one kind of ulceration, however, *hospital gangrene*, which is contagious. As with all other putrid disorders, it may be engendered by crowding together a large number of sick and diseased persons when inattention to cleanliness, ventilation, comfort, and diet exists. It is sometimes an accompaniment of dysentery and typhus, under unfavorable circumstances.

*Treatment and Prevention.*—The thing of first importance in ulceration of whatever kind, is to attend well to the general health. The treatment should be tonic and purifying throughout. The most sedulous attention to cleanliness, local and general, should be constantly observed. In no branch of the medical art is this more necessary. Wet linen dressings are the best applications that can be used locally for cleansing, soothing, and healing the parts.

Fever sores, "old sore legs," and, in short, all nameable kinds of ulcers, are better treated hydropathically than by any other known method, because no other treatment is any thing like so effectual in invigorating and purifying the system.

An *abscess* is the same as an ulcer, except that it is confined within

some part. Various parts of the body are liable to abscess, but more particularly the viscera, such as the lungs, liver, etc. *Psoas abscess*, occurring under or about the psoas muscle, and *lumbar abscess*, occurring in the lumbar region, are not unfrequently found, and are, moreover, among the most formidable and fatal of all diseases.

As matter is about to form in an abscess, chills and shivering are usually experienced. Afterward a sensation of weight, pain, and throbbing are felt in the part. Some abscesses *point*, as it is called, *i. e.*, come to maturity in a few days; others require months.

*Treatment.*—It has been common, the world over, in old practice, to open abscesses when they have become *ripe*, as it is said. Priessnitz's advice, however, was different; to let the abscess open itself. My own opinion is that he was correct. We know that patients are often made worse by prematurely letting matter out in this way. The treatment of abscess generally is the same as that for ulceration.

## CHAPTER XVIII.

### OF THE EYE, EAR, NOSE, AND THEIR DISEASES.

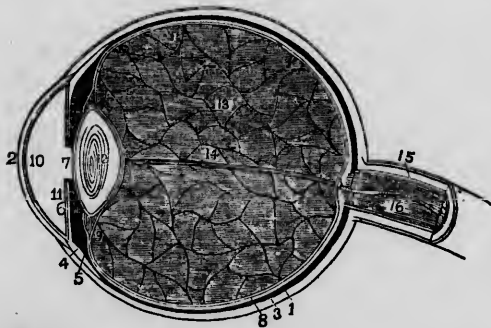
THE sense of vision is said to contribute more to the enjoyment and happiness of man than any other of the senses. By it we perceive the form, color, size, and position of external objects, and are enabled not only to recognize whatever is beautiful in nature about us, but are enabled to shun dangers innumerable that would otherwise beset our path.

The eye is composed of an *optic nerve*, *globe*, *muscles*, and *appendages*.

The *optic nerve* consists of two roots, arising from the central portion of the brain. These enter the eye posteriorly and are spread out upon the retina. In the optic nerve resides the visual sense.

The *globe* or *ball* of the eye is composed of three coats, the *sclerotic*

Fig. 142.



SECTION OF THE GLOBE.

commencement of the ciliary processes. 9. The canal of Petit, which encircles the lens (12); the thin layer in front of this canal is the zonula ciliaris, a prolongation of the vascular layer of the retina to the lens. 10. The anterior chamber of the eye, containing the aqueous humor; the lining membrane by which the humor is secreted is represented in the diagram. 11. The posterior chamber. 12. The lens, more convex behind than before, and inclosed in its proper capsule. 13. The vitreous humor inclosed in the hyaloid membrane, and in cells formed in its interior by that membrane. 14. A tubular sheath of the hyaloid membrane, which serves for the passage of the artery of the capsule of the lens. 15. The neurilemma of the optic nerve. 16. The arteria centralis retinae, imbedded in the center of the optic nerve.

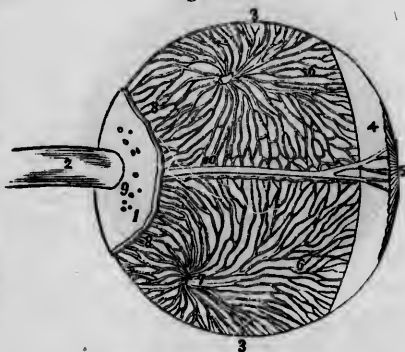
Fig. 142 is a longitudinal section of the globe of the eye. 1. The sclerotic, thicker behind than in front. 2. The cornea, received within the anterior margin of the sclerotic, and connected with it by means of a beveled edge. 3. The choroid, connected anteriorly with (4) the ciliary ligament, and (5) the ciliary processes. 6. The iris. 7. The pupil. 8. The third layer of the eye, the retina, terminating anteriorly by an abrupt border at the



and *cornea*; the *choroid*, *iris*, and *ciliary processes*; and the *retina*. Within these coats are contained the *aqueous*, *crystalline*, and *vitreous* humors, the office of which latter is to represent the rays of light.

Fig. 143 is a dissection of the eyeball, showing its second tunic, and the mode of the distribution of the *venæ vorticosæ* of the choroid. After Arnold. 1. Part of the sclerotic coat. 2. The optic nerve. 3. 3. The choroid coat. 4. The ciliary ligament. 5. The iris. 6, 6. The *venæ vorticosæ*. 7, 7. The trunks of the *venæ vorticosæ* at the point where they have pierced the sclerotic. 8, 8. The posterior ciliary veins, which enter the eyeball in company with the posterior ciliary arteries, by piercing the sclerotic at 9. 10. One of the long ciliary nerves, accompanied by a long ciliary vein.

Fig. 143.



DISSECTION OF THE EYEBALL.

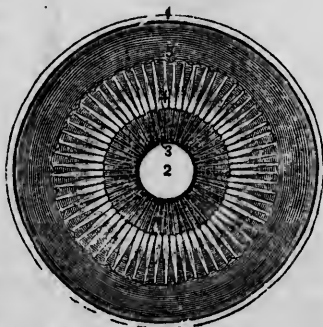
The *sclerotic coat*—"white of the eye"—is the dense fibrous membrane that invests about four fifths of the eye. Its use is to give form to the part, and attachment for the muscles of the eye.

The *cornea* "is the transparent projecting layer that forms the anterior fifth of the globe of the eye." It resembles a concavo-convex glass, and its office is to concentrate light upon the retina. Its blood-vessels are so small as wholly to exclude the red particles, because these would obstruct vision.

The *choroid coat* "is a vascular membrane of a rich chocolate brown color upon its external surface, and of a deep black color within." It secretes the *pigmentum nigrum*, which is supposed to modify the effects of too intense light.

Fig. 144 is the anterior segment of a transverse section of the globe of the eye, seen from within. 1. The divided edge of the three tunics: sclerotic, choroid (the dark layer), and retina. 2. The pupil. 3. The iris, the surface presented to view in this section being the uvea. 4. The ciliary processes. 5. The scalloped anterior border of the retina.

Fig. 144.



ANTERIOR SEGMENT.

The *iris* (many colored) serves as a partition between the anterior and posterior chambers of the eye. Its opening is called the *pupil*.

The *viary processes* are about sixty in number, resembling folds or plaits, the internal layer of the choroid coat.

Fig. 145.



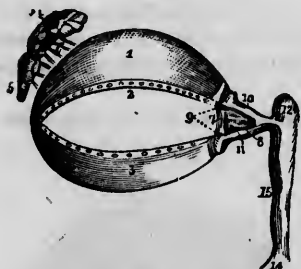
POSTERIOR SEGMENT.

It has, also, blood-vessels.

The *appendages of the eye* are the *eyebrows*, *cyeids*, *eyelashes*, *conjunctiva*, and the *lachrymal apparatus*.

The subjoined cuts give a very good representation of the different parts of the visual apparatus.

Fig. 146.



APPENDAGES OF THE EYE.

Fig. 146 is a representation of the appendages of the eye. 1. The superior tarsal cartilage. 2. The lower border of the cartilage, on which are seen the openings of the Meibomian glands. 3. The inferior tarsal cartilage; along the upper border of this cartilage the openings of the Meibomian glands are likewise seen. 4. The lachrymal gland—its superior or orbital portion. 5. Its inferior or palpebral portion. 6. The lachrymal ducts. 7. The plica semilunaris. 8. The caruncula lachrymalis. 9. The puncta lachrymalia of the lachrymal canals. 10. The superior lachrymal canal. 11. The inferior lachrymal canal. 12. The lachrymal sac. 13. The dilatation of the nasal duct, where it opens into the inferior meatus of the nose. 15. The nasal duct.

There are several practical hints regarding the uses of this important part of our bodies which should here be given. The eyes should be *used*, but never *abused*. People should not sit up late nights as they are wont, injuring them by artificial lights, and, by so doing, lose a portion of the light of day. The eye, like the rest of the body, it should be remembered, needs regular rest. Sudden transitions of light should always be avoided. Parents, as well as others, sometimes inflict a life-long injury upon the child's eyes by waking it suddenly before a strong artificial light. Too intense light of the sun should also

be shunned; and cleanliness, the most sedulous possible, is nowhere more important than in reference to these parts.

The DISEASES of the eye are numerous, the more important of which will now claim our attention.

#### OPHTHALMIA—INFLAMMATION OF THE EYE.

This is both acute and chronic. It may affect the conjunctiva simply, or the *whole* eye, but not often. *Purulent* ophthalmia is the worst form of conjunctival inflammation. It often affects children soon after birth, in consequence of neglect of cleanliness of the parts, and still oftener, probably, because of a vitiated state of constitution, derived from the mother. It is also common among adults. Ophthalmia often becomes contagious, so that persons have lost their eyes merely by wiping on a towel that an ophthalmic patient had used. It is a hard disease to remove from children's boarding schools, hospitals, etc. Scrofulous persons are most subject to it.

*Treatment.*—All the inflammations of the several parts of the eye are to be treated on the same general plan. The eyes should be used carefully, and in some cases must be excluded wholly from the light for a time, although this is too much and too often done. The general health should be improved to the fullest possible extent by air, exercise, and bathing in its various forms. The diet should be spare and anti-inflammatory, but sufficient to support the strength. The watery applications to the eyes should be such as are most agreeable to the feelings. Holding and winking sore eyes in tepid and even warm water for hours daily, is often highly useful. The more chronic the disease, the less cold the water should be as a general rule. Many have injured their eyes when chronically affected, by using water too much and too cold upon them, thus drawing morbid matters from other parts of the system unnecessarily to the eye. The object should be to draw the morbid matters of the system as much as possible away from these parts; and to this end the skin should be kept in an active, vigorous, and cleanly state, and the whole body in as pure a condition as may be. In these ways many an eye that has been lost might have been saved.\*

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\* In Egypt a severe form of this disease is very common, and which often destroys the eyes. On account of its virulence it is called *Egyptian* ophthalmia. Dr. J. V. C. Smith, the well-known editor of the "Boston Medical and Surgical Journal," and who lately made a tour in Egypt, thus speaks of the disease and its cure:

"The physicians of Egypt sometimes deplete very considerably, but the evidence of their poor success is found in the multitude of blind men, women, and children throughout all the nomes and provinces of that peculiar country. When leeches—the usual preliminary

There are several minor forms of inflammation of different parts of the eye, caused wholly or in part by ophthalmia. These inflammations and results of inflammation, have received a great variety of names, some of which are the following:

*Ophthalmia tarsi* is an inflammation of the edge of the eyelids, attended with a secretion of mucus during the sleep, and which causes them to stick together. Strict cleanliness, and anti-inflammatory treatment generally, is to be observed.

*Trichiasis* is a growing inward of the eyelashes. These must, from time to time, be plucked out.

*Stye in the eye—hordeolum*, is simply a boil of the eyelid, which cures itself in a few days. The eye-bath is highly useful.

*Ectropion*, eversion of the eyelid, is caused by long-continued inflammation of the eyelids, and is to be remedied by a persevering course of treatment, the same as for inflamed eyes generally.

*Entropion* is an inversion of the eyelid, which may sometimes be relieved by a surgical operation. It should also be treated the same as a chronic inflammation.

*Granulated eyelids* are also to be managed in the same manner. The application of the stick of nitrate of silver will sometimes apparently hasten a cure in such cases. The treatment should also be as for a chronic inflammation. The eye-bath should be used much.

*Opacity of the cornea* consists of specks or deposits in the transparent part of the eye. It is a form of inflammation, and should be treated as such. The eye-bath, as recommended under the general head of ophthalmia, is to be freely used.

*Ulcers of the cornea* are likewise to be managed in the same way.

*Closed pupil* may occur from inflammation of the iris. Surgeons sometimes succeed in helping vision somewhat, by making an artificial pupil.

*Pterygium* is a small reddish tumor, growing usually from the inner

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course—are applied, I have observed that no reduction of inflammation follows. Our dragoon, on a particular occasion, had fearful indication of an acute attack of ophthalmia. He was urged to bathe his eyes frequently in cold water, and to sleep with a pledget over them kept saturated with it. To this simple application he strenuously objected, and brought up the false notion that nobody dare apply water under such and such circumstances, which he mentioned. But I insisted, and on the second day it was our happiness to perceive a favorable change, and within a week he perfectly recovered. A second case came under my care, in a person connected with a public office in Cairo, who had unmistakable premonition of an attack. He was urged to the same course of treatment. He, too, had his whims and prejudices to contend with, but the fear of becoming blind secured the use of water, and a speedy restoration followed."

The water in Egypt, it should be remembered, is of mild temperature; nor is the coldest water best in this disease; we may use warm water even with advantage, and we may alternate with both. The feelings of comfort afford a valuable guide in all such cases.

corner of the eye. It may be cured by water usually, or it may easily and safely be removed with the surgeon's scissors.

#### LACHRYMAL FISTULA—FISTULA LACHRYMALIS.

This is a fistulous aperture at the inner corner of the eye, communicating with the lachrymal sack. It is the result of inflammation, and it causes the tears or moisture of the eye to run over the cheek. The inflammation should be removed as quickly as possible, after which a surgical operation may be of service, and which is as follows: A sharp-pointed knife for the purpose is used to open the lachrymal sack as represented in fig. 147. A probe is then introduced into the duct and made to pass into the nose. When the inflammation has sufficiently subsided, a silver probe about an inch long, with a round black head, is introduced. This allows the tears to flow through the duct by its side, and into the nose. It should often be cleaned. It is generally worn for life.

Fig. 147.



LACHRYMAL FISTULA.

#### CATARACT AND AMAUROSIS.

*Cataract* is an opacity of the crystalline lens or its capsule. *Amaurosis* is a paralysis, more or less complete, of the optic nerve. The first is sometimes remediable to a greater or less extent; the latter is seldom cured, and probably never when fully formed.

*Diagnosis.*—It is often very difficult to tell to which of these affections a case belongs. Dr. Druitt gives the following excellent rules: 1. In cataract, an opaque body can be seen behind the pupil, and the impairment of vision is in proportion to the extent of that opacity; whereas in pure amaurosis, the pupil either shows its natural color, or else a deep-seated, greenish discoloration. 2. In cataract (with the exception of the radiating variety), vision is simply *clouded*, and a lighted candle appears as if enveloped in a mist; whereas, in amaurosis, objects are seen discolored or perverted in shape, and a lighted candle seems split, or lengthened, or iridescent, and floating black spots and flashes of fire are seen when the eyes are shut, which are not present in pure cataract. 3. In cataract, vision is better in a dull light, whereas it is generally the reverse in amaurosis. 4. A patient with cataract is always able to discern light, and he looks about him

and moves his eyes as though conscious that vision still exists, although he may be unable to discern particular objects ; whereas, in confirmed amaurosis, there is a peculiar fixed, vacant stare, and the eyeball is protruded and motionless.

*Treatment.*—With regard to both of these affections it may truly be said that *prevention is better than cure*. Cataract is sometimes remedied somewhat by mechanical removal, or, in other words, a surgical operation. It is possible also to cure cataract by a thorough restoration of the general health, which is always much at fault in such cases.

#### SHORT AND LONG SIGHT.

**SHORT SIGHT—myopia**—consists in “a too great thickness, density, or convexity of the lenses or humors of the eye, whereby the rays of light are brought to a focus before they reach the retina.” It is often congenital, and may also be induced by too severe use of the eye. The sight does not, as many suppose, improve with age. **Long sight—presbyopia**—is the opposite of myopia. It depends on diminished density and convexity of the humors of the eye, arising from impaired nutrition as age advances.

*Treatment.*—In myopia the general health should be attended to in the best possible manner, and the child should not be urged at study. If it should prove decided and persistent, *concave* spectacles, and not a single glass, should be used, of a character that enables the individual to see objects within forty or fifty feet as well as other people. In *presbyopia*, also, the general health should be rigidly attended to, and *convex* glasses are to be worn, but of not as long focus, and as little as possible. Spectacles are by far too much and too soon used in this defect.

#### SQUINTING—STRABISMUS.

Squinting signifies a want of parallelism in the position and motions of the eye. It consists in a weakness of the part. It is said to be *convergent* when the eye is turned inward, and *divergent* when turned outward. It is generally confined to one eye, although both may squint, but not at the same time. If one eye is distorted and fixed, it is called *lucitas*.

*Causes.*—Squinting may be congenital, or it may be caused by irritation, and bad habits in using the eyes ; by using only one eye for a time ; by fevers, measles, small-pox, teething, worms, constipation, etc.

*Treatment.*—It is of great importance that the patient sees no one in which to imitate the disorder ; the weak eye should be strengthened as much as possible, but carefully by use. *i. e.*, the sound one should

be covered from time to time for this purpose. The following plan of exercising the eye is recommended by Dr. Drutt: "The patient is to close the sound eye and look at a particular object with the weak one. Then open the sound eye. Upon this the squinting one will immediately diverge; but by perseverance the patient may educate it till he can keep it parallel with the other." It may often be cured by a surgical operation, although it is sometimes made worse. This operation is a very beautiful one, and comparatively painless. The eyeball, it will be remembered, has four muscles, or little cords, as we may say, on its several sides, to move the eye: one to roll it upward, and one on the lower side to roll it downward, and one at each side to roll it inward and outward. Now, if by disease or otherwise, one of these cords becomes too short—the inner one for example—the eye is made to squint inward. To remedy such a difficulty, the surgeon cuts through the conjunctiva, gets a small blunt hook under the muscle in order to draw it out somewhat, and then divides it with a pair of blunt-pointed scissors. The muscle on the opposite side of the eye, having no antagonist, rolls the ball more outward, and nature fills up the vacant space in the cut muscle, thus making it longer than it was before.

**Fig. 148.**



## STRUCTURE OF THE EAR.

Fig. 148 is a representation of all parts of the ear. 1. Meatus auditorius externus. 2. Drum of the ear, or tympanum. 3, 4, 5. The bones of the ear. 7. Vestibule, the central part of the labyrinth. 8, 9, 10. The semicircular canals. 11, 12. The channels of the cochlea. 13. Auditory nerve. 14. Eustachian tube the channel from the middle ear to the throat.

Fig. 149.



DIAGRAM OF THE EAR.

tympanum and vestibule; one is the scala tympani, terminating at 12; the other the scala vestibuli.

No part of the human organism is more complex or beautiful than the AUDITORY APPARATUS, and there is none certainly that is better adapted to the purposes for which it was designed. "Its lobes, its entrances, its openings, its various drums, its minute and multiplied foramina, its delicate bones, all contribute to one common effect. Even the surrounding bones, and still more than this, the teeth, are in no small degree auxiliary to the same object, for bone, in general, is a far better conductor of sound than air, alcohol, or water."

Fig. 150.



THE COCHLEA.

Fig. 150 shows the cochlea divided parallel with its axis through the center of the modiolus. 1. Modiolus. 2. The infundibulum. 3, 3. Cochlear nerve. 4, 4. The scala tympani of the first turn of the cochlea. 5, 5. Scala vestibuli of the first turn; the septum between 4 and 5 is the lamina spiralis. 6. Loops formed by filaments of the cochlear nerve on the lamina spiralis. 7, 7. Scala tympani of the second turn of the cochlea. 8, 8. Scala vestibuli of the second turn. 9, 9. Half turn of the scala vestibuli; the dome over it is the cupola. 10, 10. Helicotrema; a bristle is passed through it in front of which is the hamulus.

The auditory apparatus consists of the *external ear*, *tympanum*, or *middle ear*, and *labyrinth*, or *internal ear*.



The *external* ear is composed of two parts: the *pinna*, or pavilion of the ear, and the *meatus auditorius externus*, or canal that leads to the tympanum.

Fig. 151 is the labyrinth of the left ear, laid open to exhibit its cavities and the membranous labyrinth. 1. Cavity of the vestibule. 2. Ampulla of the superior semicircular canal. 4. The superior canal, with its contained membranous canal. 5. Ampulla of the inferior canal. 6. Termination of the membranous canal of the horizontal semicircular canal in the sacculus communis. 7. Ampulla of the middle semicircular canal. 8. The same canal with its membranous canal. 9. Common canal. 10. Membranous common canal. 11. Otoconite of the sacculus communis. 12. Sacculus proprius; its otoconite is seen through its membranous parieties. 13. First turn of the cochlea. 14. Extremity of the scala tympani, corresponding with the fenestra rotunda. 15. Lamina spiralis. 16. Half turn of the cochlea. 17. Lamina spiralis, terminating in its falciform extremity. The dark space included within the falciform curve of the extremity of the lamina spiralis is the helicotrema. 18. The infundibulum.

Fig. 151.



THE LABYRINTH.

The *tympanum* consists of an irregular bony cavity situated within the temporal bone.

The *labyrinth*, or *internal ear*, as the name signifies, is of complex formation, embracing a bony and membranous portion. By referring to the cuts, the reader will be enabled to form some idea of the nature and complexity of these several parts.

The *functions* of the different parts of the auditory apparatus have never as yet been fully explained. That part of the external ear which projects from the head, we know is admirably contrived for collecting the vibratory waves of the atmosphere caused by sound. The *membrana tympani* is supposed to moderate the intensity of the atmospheric vibrations which constitute sound, and the tympanum itself is supposed (through the air it contains, and the small bones within its cavity) to be a means of transmitting vibrations made on the drum of the ear. The eustachian tube admits air into the tympanum, rendering the pressure on both sides of the membrane equal.

Hearing, like all of the other senses, is susceptible of a high degree of cultivation. Musicians, by practice, become able to detect the smallest possible deviations in sound, and the blind are enabled to judge with great accuracy of heights and distances, and so much so that they go about large cities, unattended by any one, teaching music, and other branches of science and art. The Indian too, by prac-

tice, can distinguish sounds which to the white man are wholly inaudible.

The *healthfulness* of this part of the system depends in great part upon that of the body generally. If a person becomes weak and nervous, hearing is liable to become affected, or wholly destroyed. Locally the parts should be kept sedulously clean, and the ear-wax should not be allowed to accumulate and harden in such a way as to obstruct hearing; but the frequent use of pins, bodkins, and the like within the ear should by no means be practiced.

The DISEASES of the ear are scarcely less important than those of the eye. These will now be considered.

#### DISEASED HEARING.

Of what may be denominated diseased or morbid hearing there are several varieties: such as *hardness of hearing*, in which the action of this function is dull or confused; *perverse hearing*, the ear being only sensible to articulate sounds when excited by those of a louder character intermixed with them; *double hearing*, or that in which the hearing of one ear is discordant with that of the other, the sounds being heard double and of different pitch; and *imaginary hearing*, in which the sensation is altogether an illusory one. There is also *deafness*, of which we shall speak presently.

*Treatment.*—The above-named affections, with the exception of the latter, are for the most part nervous; and it follows, hence, that their medical management is to be conducted on those general principles which are calculated to benefit the nervous system generally, and which have been so often referred to in this work. The abreibung, it is well, however, here to remark, is, of the tonic processes in water treatment proper, the most useful in such cases.

Drug medicines, as a general thing, afford no aid in such cases. Spontaneous cures, however, are not uncommon. A celebrated London author assures us that he had had an elderly lady for a patient, who after having at different times suffered from the various modifications of illusory sounds for several years, and tried every remedy that could be suggested in vain, at length lost the distressing sensation by degrees and without the assistance of any medicine.

#### DEAFNESS.

Deafness signifies more accurately “a total inability of hearing.” In the more common acceptation, however, it signifies a state of the auditory sensation which is materially impaired, but not necessarily

wholly destroyed. In the latter sense I shall use it on the present occasion.

Deafness may arise from several causes, such as nervous insensibility, local debility or relaxation, and organic impediment. This latter may be congenital, or it may be induced by the inflammation arising from fever, scrofula, etc., etc., and which may totally and forever destroy the functions of the auditory part.

The external opening of the ear has in a few instances been found imperforate at birth; but far more frequently deafness or impaired hearing is caused by hardened wax, excrescences, concretions, and the like. The eustachian tube has also been found closed at both extremities, in some cases; but it is much oftener destroyed by obliteration from ulceration. It is likewise liable to become closed by an accumulation of mucus arising from catarrh, and from enlargement of the tonsils in whatever way caused. When the defect or impediment is located within the cavity of the ear, its exact nature is very difficult to ascertain; nor can such be remedied as a general thing.

The *causes* of deafness, it will now be inferred, are numerous. It may arise from plunging the head into cold water when heated and fatigued, from cold taken in any of the ordinary ways, long exposure to loud and deafening noises, a sudden and unexpected explosion of thunder or noise of cannon, sudden fright or other violent mental emotion, more especially when the system is in a state of high nervous irritability from fevers, eruptive diseases, scrofula, etc., as well as from mechanical impediments.

*Treatment.*—In endeavoring to remedy disordered hearing, it is especially important that we ascertain the cause of the difficulty. True, this can not always be done, in which instances the treatment must for the most part be directed to the improvement of the general health. Where the case is imperforate, it is said that a cure has in numbers of instances been effected by making an artificial opening. In some cases also, a sudden fall or shock has been the means of removing some impediment, as has been supposed, at all events of restoring the function. But in the great majority of cases deafness is owing to impaired nervous sensibility, and can seldom be fully relieved.

#### INFLAMMATION OF THE EAR—OTITIS.

Acute inflammation of the *external* ear "is characterized by pain in the part, which is increased by pressure and by noise, as well as by the motions of the head and of the lower jaw, and by exposure to cold air." Inflammation of the *internal* ear is similar to the above, only much severer in all respects; there is headache, extreme pain, constant

ringing and throbbing in the part. Each of these forms of disease, as practiced upon according to the old methods, may prove fatal, but scarcely so, I imagine, if managed skillfully in the hydropathic way the water-cure is as effectual here as it is safe.

*Treatment.*—This should be more or less active according to the exigency of the case, but always of the antiphlogistic kind: head-baths, wet-packs, shallow-baths, etc., precisely on the same general principles as of other severe local inflammations.

#### CHRONIC INFLAMMATION OF THE EAR—OTORRHEA.

This disease—called also *running at the ear*—consists of a mucous or muco-purulent discharge from the part. It is common in large cities and among scrofulous children.

*Treatment.*—This should be the same as for scrofula generally. The diseased part should be often cleansed.

#### -EARACHE.

This affection is more common among children than adults, although the latter not unfrequently suffer severely from it. It is not in general a dangerous disease, although often a very painful one. Still, the inflammation in these cases may extend itself to the brain, in which event the evil becomes a much more serious one. If children are allowed to have a great deal of earache, it may lead to caries of the petrous portion of the temporal bone, which by inflaming the *dura mater* at that part, is almost certain to end in death. Earache, on the whole, then, is not so trifling a matter as many suppose it to be.

*Treatment.*—The old-fashioned method—the doctor's method I mean—is leeching, blistering, bleeding, and physicking, till the pain is cured. But we have now a much more speedy and efficacious way, and which does no harm, but only good to the system. We use, to wit, head-baths, wet-sheets, general baths, wet compresses—in short, the soothing, sedative and febrifuge treatment generally, according to the severity and persistency of the case. The extremities are to be kept warm; the warm foot-bath is useful now and then. So also the general warm and the vapor bath.

The NOSE is an important part of the system, not only for the purposes of respiration, but more especially the sense of smell. It is composed of bones, cartilages, mucous membrane, and the common integument. Figs. 152 and 153 give a view of its different parts.

It is a remarkable fact that some of the lower animals, and perhaps the inferior animals generally, have the sense of smell in a higher

degree of perfection than man. The bloodhound is enabled by his acuteness of this sense, to track the fox or the hare for days after these have passed over the ground, by the odor left. Dogs of all kinds are also able to follow the footsteps of their master among thousands of others that may have passed the same way. But for all this there is a wise reason, and man, comparing himself as a whole with the animal creation, has no reason to complain.

Fig. 152.



NASAL CARTILAGES.

Fig. 153.



NASAL CAVITIES.

Fig. 152 shows the fibro-cartilages of the nose. 1. One of the nasal bones. 2. Fibro-cartilage of the septum. 3. Lateral fibro-cartilage. 4. The alar fibro-cartilage. 5. Central portions of the alar fibro-cartilages, which constitute the columna. 6. Appendix of the alar fibro-cartilage. 7. Nostril.

Fig. 153 is a vertical section of the middle part of the cavities of the nose. 7. Middle spongy bones. 8. Superior part of the nasal cavities. 10. Inferior spongy bones. 11. Vomer. 12. Upper jaw. 13. Middle meatus. 14. Inferior meatus. 17. Palatine process of the upper jaw. 18. Roof of the mouth, covered by mucous membrane. 19. A section of the mucous membrane.

A healthy state of the sense of smell is dependent upon a healthy state of the nervous system generally; and it is advisable that it be preserved in as normal a condition as possible, since, if it becomes impaired, we are subjected to a variety of dangers and inconveniences, which it were better to avoid. Tobacco in the form of snuff is especially harmful to the nasal function, as well as the nasal parts.

The *diseases* of the nose will next demand attention.

### MORBID SMELL.

The sense of smell may become morbidly affected in several ways. There is what is denominated *acrid smell*, in which it is preternaturally or painfully acute; *obtusé smell*, in which it is dull and imperfectly

discriminative; and *want of smell*, in which there is total inability of smelling or distinguishing odors.

*Treatment.*—If the defect is of a nervous character simply, the remedial measures must be such as are calculated to restore the loss of nervous power, not only in the part affected, but throughout the system generally. The constitutional treatment should be tonic, and sniffing cold water frequently will be useful as a local means. If the defect is owing to organic causes, such as thickening of the nasal mucous membrane, ulceration, etc., the cure will depend upon a removal of the original cause of the difficulty.

#### POLYPUS.

There are four varieties of this disease: the *gelatinous*, the *hydatid*, the *carcinomatous*, and the *fungoid* polypus.

The common *gelatinous polypus* "is a tumor of the consistence of jelly, pear-shaped, yellowish, slightly streaked with blood-vessels, attached by a narrow neck to the mucous membrane, especially that on the turbinated bones, and apparently consisting of organized lymph." It causes a constant sensation of *stuffing*, or cold in the head, and if a cold is taken, the nose becomes more stopped. It is a common practice to remove this kind of polypus by seizing it with an appropriate instrument, drawing it out and twisting it off. But it is very apt to return again. A course of water treatment, as I know by experience, will remove a prominent growth of this kind. It is, perhaps, best in some cases to remove the morbid part, but the water treatment should be practiced with a view of warding off a return of the complaint. Much sniffing of water and nasal bath frequently are here useful, but the water should not be used cold; a temperature of eighty to ninety degrees being the most suitable.

The *hydatid polypus* is seldom seen. It consists of a number of thin vesicles containing a watery fluid, and is attached by a neck or peduncle. The vesicles burst readily on pressure, and it has been customary to apply caustics with a view of preventing their return. The water appliances, both local and general, could not fail of being serviceable in such a case.

*Carcinomatous polypus* occurs mostly in old persons. It is simply a cancerous tumor of the part, and is known by lancinating pain and the ordinary symptoms of cancer. The treatment should be like that for cancer generally.

*Fungoid polypus* "is a soft, red tumor, growing with great rapidity, frequently bleeding, and pursuing the ordinary course of fungous hematodes. The treatment is for the most part only palliative."

## CHRONIC INFLAMMATION OF THE NOSE.

This is a disease of which young persons of scrofulous habit are the more common subjects. In such cases, if it is neglected, it is liable to pass into a much more serious state, in other words, ulceration of the part. The inflammation and tumefaction cause a feeling of weight and stuffing in the head, and there is apt to be a discharge which is sometimes fetid. The treatment should be similar to that for polypus, except that it is not to be meddled with surgically.

## LUPUS.

This term signifies "a wolf;" and the disease is thus named from its ferocious character, so to say. It consists of tubercular excrescences, with ragged, spreading ulcerations, chiefly about the ala of the nose; the parts are soon destroyed for a considerable depth, and the principal part of the organ is indeed sometimes eaten off in this way. The treatment should be the same as for cancer, locally and generally.

## OZÆNA.

This disorder consists in "an obstinate fetid discharge from one or both nostrils, depending on ulceration of the membrane, with or without disease of the bones." It is probably more frequently a venereal affection, but not always so: scrofulous children and others who are perfectly free from any such taint of the system, may have it. Hence we see there are several diseases, this being one of the number, which may destroy a person's nose. Hence we see, also, how unjust and uncharitable it is, when one sees persons who have met with the misfortune of losing this part, to conclude that they have subjected themselves or been subjected to syphilitic disease. Ozæna is to be treated like cancer; that is, the best possible attention is to be given to diet and the habits generally, and water is to be used in all ways calculated to fortify and invigorate the general health.

## SNEEZING.

This affection, if such we may call it, consists in an "irritation of the nostrils, producing sudden, violent, and sonorous expiration through their channel." "In sneezing," says Dr. Young, "the soft palate seems to be the valve, which, like the glottis in coughing, is suddenly opened, and allows the air to rush in with a greater velocity than it could have acquired without such an obstruction."

Sneezing is to be looked upon as a salutary effort of nature, intended to throw off from the delicate mucous membrane of the nostrils what

ever irritating or offending material may be lodged there. And still the act sometimes appears to become a morbid condition, leading to no good results. In some few instances, indeed, death has been caused by it. It sometimes occurs also as a sympathetic affection in disorders of the lungs, stomach, liver, bowels, etc.

*Treatment.*—It is not often that the physician is called upon to prescribe in a case of this kind. The rubbing wet-sheet, in consequence of its anti-spasmodic effect, is a good remedy. The nasal bath is also useful. "When the complaint is idiopathic or acute, or, in other words, when the Schneiderian membrane is morbidly sensible, or stung with some irritant material," observes Dr. Good, "it may be relieved by copiously sniffing warm water up the nostrils, or throwing it up gently with a syringe, or forcing up pellets of lint moistened with opium—dissolved in warm water, the pressure of which is sometimes of as much service as the sedative power of the fluid itself." A free and spontaneous hemorrhage from the nostrils sometimes effects a cure in such cases.

#### RUNNING AT THE NOSE—CORYZA.

A preternatural flow of mucous, watery, or other matters, may occur in the nostrils from a variety of causes, such as sternutation, weeping or crying, sudden chill or change in the atmosphere, ulcerations, exposure to a keen, frosty air, habitual indulgence in snuff or other nasal stimulants, etc.

Speaking of habitual irritants, as a cause of coryza, Dr. Good observes: "Snuffs are the worst, for the tobacco of which they consist operates with the mischief of a narcotic, as well as of a stimulant; and hence the copious and foul secretion with which the nostrils of aged snuff-takers are constantly deformed."

*Treatment.*—The medical management of coryza consists, in great part, in removing its cause or causes. When it is owing to general debility, as is often the case among old persons, this should, as far as possible, be prevented. The skin should be excited to activity by the *abreibung*, wet-hand frictions, etc., and the bowels should be kept in as free and healthful a state as possible. The nasal bath, tepid, and sniffing of water of a moderate temperature frequently, are highly useful.

#### COLD IN THE HEAD AND CATARRH.

The word "catarrh" signifies a discharge of fluid from a mucous membrane. With us it is restricted to inflammation of the mucous membrane of the air passages; but the French extend it to all the



mucous membranes. Among the laity in this country "catarrh" implies a disease, or running in the head; and the word is often used as synonymous with coryza, or running at the nose. Ordinarily catarrh is a matter of small moment, inasmuch as it passes off spontaneously in a short time.

*Treatment.*—A common cold in the head is treated essentially the same as colds upon the chest and lungs, bearing in mind the difference in the parts affected. The fever, if such occurs, is to be managed according to its degree; and sniffing of tepid water, much and often, is highly useful. Washing and rubbing the face and throat a good deal with the hand wet in cold water is likewise an excellent revulsive measure.

The common adage, "starve a fever and stuff a cold," is founded in error. True, it is best to starve a fever, in its more active stages, because there is inflammatory action; but later, nourishment is to be taken. What is termed a cold is necessarily inflammatory, and hence *starving*, instead of *stuffing*, is the appropriate means.

## CHAPTER XIX.

### DISEASES OF THE URINO-GENITAL ORGANS.

#### INFLAMMATION OF THE KIDNEYS—NEPHRITIS.

THIS is one of the most painful of all inflammatory diseases, because of the confined locality of the part implicated.

*Symptoms.*—These are, “pyrexia; pain in the region of the kidney, extending along the course of the ureter to the neck of the bladder to the groin, or scrotum, and frequently attended by retraction of the testicle. The pain is deep-seated, circumscribed or diffuse, acute or dull, sometimes only felt on pressure, but always increased by firm pressure, by the erect or sitting posture, by coughing, sneezing, or other strong expiatory movements, and sometimes even by the descent of the diaphragm in ordinary respiration. It is also increased by straightening or stretching the lower extremity of the affected side. Instinct directs the patient to avoid this; to incline to the affected side, and to bend the limb, thereby relaxing the muscles of the loins. Hence he lies on the affected side or back, and draws up one or both lower extremities. Nausea and vomiting; frequent micturition; dysuria, with partial or total suppression of urine. The urine which is passed is usually at first bloody and coagulable by heat and acids; but after a time the blood disappears, and the urine becomes pale, watery, not coagulable, and either neutral or alkaline. Albumen is, however, sometimes present; but in these cases the inflammation is probably complicated with granular degeneration of the kidney. The pulse is full, hard, and frequent at first, but becomes small as the disease advances; the tongue is covered with a white fur; there are constipation, tympanites, and wandering pains in the abdomen, with an anxious expression of countenance and depression of spirits.”

The disease terminates in resolution, in abscess, in gangrene; the two latter of which are almost necessarily fatal.

*Diagnosis.*—Nephritis is sometimes mistaken for lumbago, and *vice versa*. It is known from the former by the pain being of a more fixed nature, and not spread over a large surface; by pressure directly over the kidneys causing pain; by the pain following the course of the

uretus; by the dysuria and micturition; by the retraction of the testicle; and by the pain not being increased by motion of the muscles.

The disease is generally curable before the fifth day. Severe rigors, sudden cessation of pain, hectic, hiccough, delirium, and cold extremities are all highly unfavorable omens.

*Causes.*—These are the same as of inflammation generally, cold, etc.; to which is to be added calculi, or gravel in any of the urinary passages; external injury; straining; too much exercise, as on horseback; hardened feces in the colon; gout of the part, as some say, and the various diseases of the urino-genital apparatus.

*Treatment.*—This, from the very beginning, should be of the most active kind. The great object is to subdue the fever and quell the pain. Cooling wet-packs, often repeated, cold sitting-baths, rubbing the whole back much with the hands wet in the coldest water, and with ice, are the means. The pain should, as far as possible, be kept subdued. The extremities should, for the most part, be kept warm. The warm or vapor bath, alternating now and then with the cold treatment, is useful. But the great reliance is to be placed upon cold. Pure soft water to be drank frequently. The hunger-cure should be followed rigidly till all pain ceases.

#### GRANULAR KIDNEY—BRIGHT'S DISEASE.

This is a sort of consumption of the kidney, first described by Dr. Bright, of England. It may be either acute or chronic. In the former there is fever, and the urine is scanty and loaded with albumen. The painful symptoms resemble those of nephritis. In the chronic form the same symptoms obtain in a greater or less degree. There is apt to be dropsical swelling of the abdomen or legs, or both, and the disease is apt to lead to some other fatal malady.

*Treatment.*—The disease is probably seldom cured when fully formed. The great hope is prevention when the first symptoms appear. Dr. Hooper wisely recommends "abstinence from fat and oily substances," and "temperance, pure air, a clean skin, plain and wholesome diet, and regular exercise in the open air," as particularly to be enforced in persons who have suffered, or seem liable to suffer, an attack of this disease.

#### INFLAMMATION OF THE BLADDER—CYSTITIS.

As an acute disease, cystitis is not often met with. The symptoms are: "pyrexia; acute pain; swelling and tension in the region of the bladder; pain and soreness, increased upon pressure above the pubes, or in the perineum; frequent micturition; painful discharge of urine

in small quantities, or complete obstruction to its passage; tenesmus, vomiting." The chronic form of the disease occurs mostly in connection with stone, gravel, fungus, ulceration of the bladder, etc., the symptoms varying according to the nature of the complaint.

*Treatment.*—Acute cystitis is to be treated, like any other internal local inflammation, by the cooling means locally and generally applied. It is of service to inject tepid water into the bladder frequently.

#### GRAVEL—LITHIASIS.

The urine is naturally an acid secretion, holding a certain amount of earthy salts in solution. Hence, if the acid becomes deficient, or the calcareous matters superabundant, there must at once be an accumulation of sandy or earthy particles, constituting what is termed *gravel*. This, in its turn, has a tendency to form larger concretions, which are called *stone* or *calculus*, and which may form either in the kidneys, the ureter, or the bladder.

*Symptoms.*—The ordinary symptoms of *gravel* are: "dull or acute pains, with a sense of heat and heaviness in the lumbar region, with more or less pain or difficulty in voiding the urine, increased by sudden and violent motion, with occasional pain behind the pubes, irritation at the neck of the bladder, and itching or pain at the extremity of the penis. Sometimes there is retraction of the testicles, with discharge of bloody urine, or of clots of blood. The urine, even while warm, contains a sandy powder, crystalline grains, or small calculi. It is generally rather scanty, high-colored, of high specific gravity, acid, of a strong odor, and disposed to become turbid on cooling. The digestive organs are deranged; there is a sense of weight in the epigastrium; acidity of the stomach, with flatulence; frequent eructation; constipation; furred tongue; dry skin; restlessness, and feverishness."

The more common forms of gravel consist of nitrate of ammonia, phosphate of magnesia, phosphate of lime, and the oxalate of lime.

*Causes.*—Hard water, sedentary habits, high living and drinking, are the principal predisposing causes of gravel. Hereditary predisposition has also much to do with it. The exciting causes are cold, blows, and injuries upon the loins, fits of dyspepsia, gout, and organic diseases of the kidneys or bladder.

*Treatment.*—This should have, in great part, reference to the improvement of the constitution generally. The matter of the body should be changed as rapidly as possible for that which is pure and healthy, by the use of wet-packs, rubbing wet-sheets, sitting-bath, etc. The diet should be spare but sufficient. If there is much pain, a course of hunger-cure should be entered upon. The diet should be vegetable

and fruits, with a very moderate use of milk; and the purest and softest water only should be used.

#### STONE IN THE KIDNEYS, URETERS, AND BLADDER.

Following, as well as in connection with gravelly deposits, calculi in the kidneys ureters, and bladder are not unfrequently formed. The disease is one of the most formidable and painful to which human nature is subject.

*Symptoms of Calculus in the Kidneys.*—These are, severe pain in the loins, extending to the groin, testicle, and often to the extremity of the penis; retraction of the testicle, painful and bloody urination, vomiting, restlessness, and some fever.

The *treatment* should be the same as for acute pains and inflammation in the kidneys generally. The wet-sheet pack, cold sitting-baths, the shallow-bath, rubbing the back with pieces of ice, frequent clysters to the bowels, etc.—all this will have a tendency not only to relieve the pain, but to stimulate the parts to expel the offending matters through the urinary channels. The discharge of a small calculus or a deposit of gravel often affords immediate relief.

*Symptoms of Calculus in the Ureters.*—These are for the most part the same as those relating to calculus in the kidneys. The *treatment* is likewise the same.

*Symptoms of Stone in the Bladder.*—These vary greatly in character and severity according to the size and surface of the calculus, the condition of the bladder and the urine, and especially that of the general health. A smooth calculus always induces much less pain and uneasiness, other things being equal, than one that is rough; a heavy one will give much more trouble than that which is light; an inflamed surface in the vesicæ will be attended with more uneasiness than that in which the opposite state of things exists; acrid urine will cause the calculi to give more pain than that which is of bland and healthy character; and the general integrity and healthfulness of the system will materially modify the results.

Dr. Marshall Hall observes: "1. In the *milder* forms of this disease, there is a slightly increased desire to pass water, and this act is followed by slight irritation of the cervix, or along the urethra. The flow of urine is sometimes suddenly stopped, the calculus closing the orifice of the urethra. The urine is apt to be bloody after riding or other shaking exercise.

"2. In the severe forms of calculus, the calls to make water become sudden, frequent, urgent, and irresistible, and liable to be induced by ny change of position. There is a characteristic sympathetic pain on

voiding urine, at the termination of the urethra and glans penis. There is pain in the region of the bladder, in the groin, etc.

"3. The symptoms are aggravated still further as the calculus enlarges, as the bladder inflames, and as the urine becomes alkaline. The desire to make water becomes urgent and incessant, the pains are extremely augmented, and the urine becomes ammoniacal, mucous, and bloody. There is sometimes spasmodic stricture of the urethra."

It is said of Dr. Franklin, who would never submit to an operation for stone in the bladder, with which he was for many of the later years of his life afflicted, that, when riding at one time while in Paris at a rapid rate in a stage coach, the pain became so great he raised the window, exclaiming at the same time, "Murder! murder!" that the driver might be induced to stop.

*Treatment.*—Once a stone has formed in the bladder, the patient should most sedulously avoid every known cause of increasing the painful symptoms generally. His life should be comparatively a quiet one, and as free as possible from all undue bodily or mental excitement. The diet must also be proportionately spare. Full diet and little exercise always make bad work in the system. The free use of pure soft water and fruits, as a part of the regular meals, will be serviceable in preventing an increase in the size of the calculus, and the painful symptoms attending it. The warm-bath, as a palliative, is to be resorted to occasionally. As to whether an operation for removing the offending mass is to be decided upon, the patient must be the judge. The proceeding is a formidable one, but often succeeds in skillful hands. The better the health, the diet, and the habits generally, the less the danger attending it.

#### DESTITUTION OF URINE.

This implies that state of the system in which none of the renal secretion is given forth by the kidneys; there is no desire to make water, nor is there any sense of fullness in any part of the urinary track. Cases have occurred in which weeks and even several months have elapsed, the individual passing no urine whatever during the whole time.

*Treatment.*—To remedy this affection, it should be remembered that the skin and mucous membrane internally have great sympathy with the kidneys, and that in proportion as we restore the tone of the former we will aid in establishing the function of the latter. A free and frequent use of the *abreibung* will be of essential service, and so, in fact, the tonic treatment generally. The patient should drink water rather freely, but of the softest and purest in quality he can obtain.

## STOPPAGE OR RETENTION OF URINE.

This signifies a total obstruction in the flow of urine, accompanied with a sense of weight, pain, or uneasiness in some part of the renal apparatus. The difficulty may be owing either to the kidneys, ureters, bladder, or urethra. In general there is inflammation of one or more of these parts. It may be caused by atony or paralysis, by the presence of calculus, viscid mucus, clotted blood, phymosis, gonorrhea, stricture, or the absorption of cantharides from blistered surfaces. There is always danger if the retention is allowed to go on very long, although there have been instances in which it has lasted for one or two weeks, and even many weeks, as some have asserted, without material harm.

*Treatment.*—The condition is to be *remedied* in several ways according to the nature of the case. A cold bath, or sitting in cold water will often excite the flow of urine in a remarkable manner. Cold appliances are, in fact, generally much better than warm in accomplishing this object, although the extremities should be kept comfortable. In some cases it is necessary to use the catheter, and in still others the bladder must be punctured, both of which operations require the aid of a surgeon. I should, however, go to a great extent in chilling the system before I should be willing to adopt mechanical means, especially that of opening the vesicæ.

## STRANGURY.

This term denotes “a painful and stillatitious emission of the urinary secretion.” It may be occasioned by a spasmodic action in the muscles of some part of the urinary apparatus; by a callus thickening of the mucous membrane of the urethra, by the inflammation arising from the use of blisters; by stricture, and by polypus within the urinary parts. The pain in this affection is sometimes peculiarly distressing; so much so that the patient’s limbs tremble, his face becomes flushed, and in some instances the feces even are discharged at the same time with the urine. Hernia has been produced by the violent straining in some instances. Thick mucus is sometimes discharged with the urine, and in some cases worms, which have given rise to great pain and disturbance in the bladder.

*Treatment.*—This, so far as the general health is concerned, is essentially the same as that for stoppage of urine. If the difficulty arises from mechanical causes, such as worms, thick mucus, thickening of lining membranes of the urinary passages, it will be necessary in some instances to resort also to mechanical means. All along, improving the general health should be kept steadily in view.

## SACCHARINE URINE—DIABETES.

In this disorder the urinary discharge is free, and for the most part profuse, of a violent smell and a sweet taste, attended with great thirst and general debility. An essential feature of the disease is that of the production of sugar in the renal secretion—a circumstance which has not thus far been discovered in any of the lower species of the animal creation.

"Diabetes is attended, for the most part," according to Dr. Latham, "with a very voracious appetite and with an insatiable thirst; with a dry, harsh skin, and clammy, not parched, but sometimes reddish tongue; and with a frequent excretion of very white saliva, not inspissated, yet scarcely fluid. As the disease proceeds, it is accompanied often with a hay-like scent or odor, issuing from the body, with a similar sort of halitus exhaling from the lungs, and with a state of mind dubious and forgetful, the patient being dissatisfied, fretful, and distrusting, ever anxious indeed for relief, but wavering and unsteady in the means advised for the purpose of procuring it."

The amount of urine passed is for the most part greater than natural; twenty, thirty, forty, and even so high as two hundred pints have been discharged in the twenty-four hours.

Often, in diabetes, the flesh wastes rapidly in spite of all that can be done to prevent it. "As the emaciation advances," observes Dr. Latham, "cramps or spasms of the extremities sometimes supervene, the pulse is more quick and feeble, and the saliva more glutinous. And when the strength is almost exhausted, in a still more advanced stage of the disease, the lower extremities often become edematous, and the skin cold and damp; the diabetic discharge is then frequently much diminished, and is sometimes found to become even more urinous for a few hours before death closes the scene." There is sometimes a pulmonary disease present at the same time.

It is here to be remarked, that the real nature of this disease is not as yet understood. In many, and perhaps most instances, the kidneys present no appearance of local disease.

The *causes* of diabetes are likewise in great part obscure. Dr. Good holds that whatever debilitates the system, seems at times to become a predisponent, and only requires some peculiar local excitement to give birth to the disease. It appears also to occur as a consequence of old age, of intemperance, diseased liver, gout, in short, any thing which to a great extent deteriorates the general health.

*Treatment.*—The plans of treatment adopted in diabetes have been as various as the theories concerning the nature of the disease. No



can it be claimed that any very satisfactory results have been obtained; for the disorder has generally proved fatal, although in a few instances cures have taken place, but more it is believed in consequence of the spontaneous efforts of nature than from any aid of art. All nameable drugs that possess any considerable potency have been resorted to over and over again in the treatment of diabetes, and yet there is not one among the whole catalogue that any one pretends to rely upon.

The same difficulty with regard to diet has also been experienced, some claiming that animal food taken exclusively, or as nearly so as possible, is to be preferred, while others of equal celebrity are of the contrary opinion.

The objects in treating diabetes manifestly are, to restore as far as possible the defective power of the digestive apparatus, to cut off the supply of saccharine matter, to mitigate or remove the most distressing symptoms, and to support the strength. The water processes assuredly in connection with a proper dietetic regimen, are admirably calculated to fulfill these ends. The rubbing wet-sheet, wet-sheet pack, sitting-baths, the wet girdle, etc., are to be used according to the powers of reaction in the case. It does no manner of good to keep the patient from drinking water, as has often been done, but he should be allowed all that he wants. Vegetarian diet is evidently preferable, because it supports the strength more fully and creates less thirst. Fasting has great power—greater than any other known means in reducing the quantity of the urinary secretion. The hunger-cure certainly promises well in diabetes. Every thing should be done that may be to support the strength.

#### INCONTINENCE OF URINE.

This may arise from several causes, such as superabundant secretion, weakness of the sphincter of the bladder, a peculiar irritation in some part of the urinary apparatus, or a peculiar acrimony of the renal discharge. Strange as it may appear (we have it on good authority), this disorder may arise from a growth of hairs in the bladder or some other part of the urinary organs, the fact being known by the discharge of such growths from them.

The most common form of this affection is that in which the sphincter of the bladder is weakened so that it yields frequently under the action of slight causes, either in sleep or when the urinal is not sufficiently on its guard.

It is most common before puberty, for the young usually outgrow the evil during this important change in the system. Sometimes also it is prolonged to old age. In other instances it comes on primarily

with advancing years. It is experienced oftener at night, but with some also during the day.

Some are of the opinion that "wetting the bed" occurs more frequently if the patient lies upon the back; others are of a contrary opinion, however; but the first hypothesis is doubtless the true one, because the side is the more natural posture for sleep.

With regard to the management of this disagreeable affection, it is to be remarked, in the first place, that children should not be blamed for that which it is not in their power to avoid. Both parents and others have done great injustice to the young in this matter, as I myself have known.

The great thing in common cases is to restore the general health. When this difficulty is connected with paralysis, hysterics, etc., the primary symptoms must, of course, be more especially considered. Some cases are incurable, and it is to be remarked that drug medication has seldom accomplished any good in this disease.

The *hunger-cure*, *i. e.*, living sparsely, and omitting the evening meal, is an invaluable measure in urinary incontinence. So, also, the wet girdle worn at night.

#### ERRATIC URINE—PARURIA ERATICA.

Erratic urine signifies a discharge of the renal secretion at some foreign outlet. It is sometimes met with while there is a free flow of urine through its ordinary channels, and at other times it travels in some new direction, to carry off matters which can not otherwise be discharged from the system. In the latter, however, it is, perhaps, more proper to speak of it as performing a remedial or critical office than as a distinct disease.

The more common outlets for the discharge of which we are speaking, are the bowels, salivary glands, skin, and navel. Not unfrequently a fistulous opening has been formed in the perineum; and the urinary fluid has been found in post-mortem examinations to have become effused into the ventricles of the brain. The disease is an irregular one, that is, the discharge sometimes changes from one part to another, and in others occurs at the same part, only at irregular periods.

The causes of erratic urine are necessarily obscene, and its remedy depends upon a restoration of the general health.

#### SYPHILIS—LUES—POX—VENEREAL DISEASE.

The etymology of the word "syphilis" is obscure, some regarding that it is derived from a Greek word, signifying "a hog," and others from another Greek term, denoting "shameful," "dirty," etc. There

can be no uncertainty, however, respecting the loathsome and destructive character of the disease.

Syphilis is more frequently communicated by impure coition, although there are various other ways of receiving the disease. It has been sometimes caught by sucking the nipple of an infected wet-nurse ; by infected saliva communicated in the act of kissing ; by drinking out of a cup that had previously been used by a syphilitic patient ; by lying in a bed which had been antecedently occupied by a person laboring under the disease ; by being bled or scarified with an infected lancet ; by being shaved with an infected razor ; by the attendance of an infected midwife ; and the disease is said even to have been communicated through the breath of one tainted with the malady.

A melancholy instance of syphilitic infection is related by Dr. Barry, of Cork. The poison was communicated by a woman who was in the habit of drawing the breasts of puerperal patients, and who, upon examination, was found to have chancres (syphilitic sores) on the lips and roof of her mouth, probably caught from some impure person in the course of her vocation. From the numerous engagements of this woman the disease had spread very widely ; and the rapidity of its progress was as striking as the manner of its communication. "The nipple," observes Dr. Barry, "first became lightly inflamed, which soon produced an excoriation, with a discharge of a thin liquor ; from whence spreading pustules were dispersed round it, and gradually spread over the breast, and, where the poison remained uncorrected, produced ulcers. The pudenda soon after became inflamed, with a violent itching, which terminated in chancres that were attended with only a small discharge ; and in a short time pustules were spread over the whole body. It finished this course, with all these symptoms, in the space of three months. The disorder made a quick and rapid progress in those who first received it, they not being apt to suspect an infection of this nature in their circumstances. The husbands of several had chancres, which quickly communicated the poison, and produced ulcers in the mouth and red-spreading pustules on the body. But some of them escaped, who had timely notice of the nature of the disease, before the pudenda were affected. Some infants received it from their mothers, and, to the greatest part of them, it proved fatal."

Facts like the foregoing serve to impress us with the importance of being ever on our guard whenever we are placed under circumstances in which it is possible for us to become infected with this loathsome disease. It must, however, be admitted that, in the vast majority of cases of syphilitic infection, impure cohabitation has been its cause, whatever may be the assertions of those who apply to us for advice.

*Symptoms.*—These are of two kinds—the *primary* and the *secondary*.

The primary symptoms consist of chancres, or ulcers, appearing most frequently on the genitals from the third to the tenth day after infection. These ulcers vary in character and appearance, according to the individual's constitution and the nature or virulence of the poison from which they originate. *Bubo*, or a painful swelling of the lymphatic vessel or gland of the groin, is also one of the primary symptoms of syphilis. In general, the bubo ulcerates and breaks, and, in some cases, causes a tedious and troublesome sore. It is a very painful affair.

The *secondary symptoms* occur usually in five or six weeks after the primary; but sometimes earlier, and, in other instances, at a much later date—several months at least. For some time before their appearance “the patient is generally thin and wan; looks dispirited; his eyes are heavy; and he complains of want of sleep and of rheumatic pains.” The skin and mucous membrane of the throat are generally the parts first affected—the symptoms consisting of eruptions of an obstinate character, and ulcers, which, as well as the latter, take on a variety of forms and appearances. The eyes are, also, very apt to become diseased; but the most horrible phase of the affection is that of the bones. These often become extensively affected, and, indeed, as we may well say, rotten, causing an amount of suffering, more especially at night, which may well remind us of the fabled tortures of the damned. If the disease locates itself on the head, as not unfrequently happens, the skull may become eaten away to such an extent that the brain protrudes, causing death by irritation of its membranes. The nose and bones of the face are likewise, in some cases, eaten away and, in connection with the ravages upon the bones, the most loathsome ulcers occur in various parts of the body.

Some of these cases of secondary syphilis do, indeed, present as loathsome a picture as it is possible to conceive of. Mr. Tait, a Scottish writer on the subject, thus speaks of a case which was at the time under his charge. He remarks: “The whole bones of the nose external and internal, the bones which form the roof of the mouth, the bones of both cheeks, the greater part of the superior maxillary or jaw bones, with the teeth which they contained, besides all the softer fleshy parts connected with or covering them, have been successively separated from the body. The disease has continued for more than three years, and has set at defiance every remedy which the most celebrated medical practitioners in Edinburgh could suggest. Her face is literally rotten, and presents a large opening, into which an ordinary sized fist may be thrust without difficulty.” It is, indeed, not possibl

to conceive of any thing more loathsome, more disgusting, than multitudes of cases of this disease which may be seen in any hospital of considerable extent, wherever located in the civilized world.

*Treatment.*—For a long time it was believed that mercury is a specific for the syphilitic poison; but the notion is not at the present time held by any respectable authority. It is admitted, moreover, that the horrible symptoms of secondary syphilis have in many instances been, to say the least, greatly aggravated by this drug. The more rational principle of treatment—the one now adopted by the more intelligent among practitioners—is, not to look upon medicines as a specific for syphilis, but to adopt such means as are best calculated for the good of the constitution generally.

With regard to chancre, many are of opinion that if it can be removed at once on its appearance, the system is in great part saved from the venereal infection. It is customary to cauterize the sore as soon as it appears; but a still better method would be to burn it out at once with a hot iron. This makes short work of the matter, and if cauterization is worth any thing to keep off constitutional symptoms, the sooner it is done the better. Local wet compresses to the parts should be used unremittingly; the wet-sheet pack should, if possible, be used often, the diet should be strictly vegetable, and the whole management, both as regards the primary and the secondary symptoms, should be such as is best calculated to purify and invigorate the body generally. The hunger-cure is no where more applicable.

#### GONORRHEA AND GLEET.

Gonorrhea, or clap, is an entirely distinct affection from the last considered, although the two may in some instances happen in connection. The term "gonorrhea" signifies "an inflammation of the mucous membrane of the male urethra or female vagina, from the application of a morbid poison, generally during sexual connection."

*Symptoms in the Male.*—Dr. Druitt observes: "The patient first experiences a little itching or tingling at the orifice of the urethra, together with a sense of heat and soreness along the under side of the penis, and slight pain and scalding in making water. A little discharge soon exudes from the urethra; at first it is thin and whitish, but it soon becomes thick and puriform; and when the disease is at its height it is yellow or greenish, or tinged with blood. The penis swells, the glans is of a peculiar cherry color, is intensely tender, and often excoriated. In consequence of this tumefied state of the urethra, the stream of urine is small and forked, and passed with much straining and with severe pain. In addition to these symptoms there occur, in

some cases, long-continued and painful erections, constituting *chordee*, or a highly painful and crooked state of the private member."

*Symptoms in the Female.*—These are for the most part similar to those enumerated. "There is heat and pain in making water, and tenderness and soreness, especially in walking, uneasiness in sitting and muco-purulent discharge. The parts are swelled and red, and if the case is severe, there may be excoriations or minute aphthous ulcerations."

*Gleet* is an old or chronic discharge, arising from badly treated or neglected gonorrhea. It is often a very troublesome matter, and many who have it are impotent besides, low-spirited, and desirous of making away with themselves. It is a singular fact that men who become bankrupt in this part of their organism, are apt to be tormented with suicidal propensities.

*Treatment.*—Gonorrhea is in the beginning an inflammatory disease, and for this reason should be treated actively. The cooling wet compress upon the part affected, and the sitting-bath, have great power over the disease; but it can not be cut short speedily in all cases. It must, in fact, have a sort of course of its own; still a great deal may be done in mitigating its violence, and consequently in shortening its duration. The general treatment may be considered the same as for syphilis. The patient should be very careful not to overheat his blood, become too much fatigued, or stand too long on the feet at a time. Do what we will, such cases sometimes run on for months; but gleet, so far as I am aware, does not follow this disorder when water treatment is practiced.

It may be of interest to some to learn that there is no drug specific for this disease. If a medicine ever does any good under such circumstances, it is because of its effects on the constitution generally, and not of any direct power it may have over it. But drugging is a poor policy, making the best of it, and generally leaves the patient only the worse.

*Gleet* is to be managed on general principles; the system is to be purified and invigorated by baths, diet, etc., and the private member is to be kept constantly swathed in wet cloths. In all of these cases vegetarian diet is of great importance.

*Stricture of the urethra*, which is sometimes a result of gonorrhea, as well as of syphilis, may often be relieved by the cold compress, the cold sitting-bath, the cold general bath, wet-sheet pack, etc. The sooner it is treated, the better the prospect of a cure without surgical operation. A thorough course of hunger-cure is excellent in cases of this kind.

## SPERMORRHEA.

This term signifies an involuntary emission of seminal fluid, without copulation. It happens mostly in connection with libidinous ideas, although in some cases it takes place during sleep, and without the knowledge of the individual.

*Treatment.*—Spermorrhea, as will be inferred, occurs under two very different conditions of the system: the one in which the subject is strong and robust, the other in which an opposite state exists. In the former the treatment must consist for the most part in moral restraint; at the same time an active out-door life, cold bathing, and spare vegetarian diet will be useful auxiliaries. Animal substances of whatever kind, even milk and eggs, tend much more to stimulate the sexual propensity than plain farinaceous food and fruits; and whether there is great strength or debility, it is better for the patient to restrict himself as nearly as possible to articles of this kind. In case of debility the lighter processes of water treatment are to be adopted, and all other known means of fortifying the general health. Spermorrhea with debility sometimes requires a long time to effect a cure. If, however, the patient will but persevere sufficiently in the tonic course, at the same time keeping his mind in subjection to the moral powers, he may reckon upon a certain cure.

## CHAPTER XX.

### OF WOUNDS, HEMORRHAGES, AND THEIR CURE.

BEFORE proceeding to speak of the nature and treatment of wounds, I shall give some account of the historical uses of water in this department of the healing art. The facts we shall find not only interesting but highly instructive.

Hippocrates, the "father of medicine," "the old man of Cos," whose writings may be considered as furnishing a summary of medical practice up to his time, was in the habit of using copious affusions of cool or cold water after the suitable bandages and other apparatus in ecchymosis, contusions, stretching and rupture of muscular fibers, luxations, sprains, diastasis, fractures extending into articulations, etc. In luxations of the astragalus, calcaneum, and in all articular lesions, warm affusions were his recommendation. We do not assert that water was the only topical application used by this distinguished benefactor of the race, but that he employed it with great freedom, and placed a much higher estimate on its virtues than practitioners generally have, even at the present day.

Celsus, who although he did not through all parts of his life adhere very closely to simple treatment, extolled in high terms the virtues of water. On the subject of the dressing of wounds he thus expresses himself: "A sponge, immersed in cold water alone, answers in slight cases; but whatever may be the liquid with which it is charged, it allays pain so long as it is moist; therefore we must not permit it to become dry. *In this way we may heal wounds without having recourse to foreign, scarce, and compound medicaments.*" Another passage from Celsus is this: "If adhesion has commenced, and if there is but slight tumefaction, we must adhere to the first kind of dressing; but if inflammation is active, and there is no hope of agglutination, we ought to employ suppuratives. The use of warm water is equally necessary to resolve engorgements, to diminish hardness, and to render suppuration more active. The warmth of the water must be such, that the hand, when plunged into the liquid, shall experience an agreeable sensation; and it is well to continue this application till the wound appears less swollen, and has a more natural temperature." This author



also recommends the use of water in diseases of the eye, hemorrhages, fractures, etc.

It appears that after the time of those earlier physicians, water, as a remedy in wounds and injuries, for a long time went into disrepute. The simple practice appears to have been set aside by the Arabian physicians, and Celsus having introduced a variety of absurd and complicated medicines into fashion, which held their ground till the fourteenth century, when the surgeons of that period fell as foolishly into the opposite extreme as that of composing their medicines of a multitude of ingredients. They now endeavored to discover some *one* remedy which would be universally applicable. This gave rise to *secret dressing*, as it was called, each practitioner assuming that he possessed the much desired panacea. Some of those secret remedies when discovered were found to be ridiculous; as for example, oil and cabbage, and an oil made of kittens were much in use. At this period, and for a long time after, water was employed, but accompanied with some absurd form of incantation, to which all its good effects were ascribed.

Ambrose Paré, an eminent French surgeon of the fifteenth century, who was a man of the greatest talent and experience of his day, refused for some time, as we are told, to apply water to wounds, because the effects seemed to him to be so extraordinary, that they could only be produced by supernatural agency, which, from religious scruples, he did not consider it justifiable to employ. "During the siege of Metz, in 1553, an ignorant quack, named Maître Doublet," as Brantome relates, "performed strange cures with simple white linen, and clean water from the fountains or wells. But he was assisted by sorcery and charmed words, and every one went to him as if he were Maître Ambrose Paré himself, a man so celebrated, and considered the first of his day." Ambrose Paré himself said, afterward, "I do not deny that water is a good remedy in wounds and recent injuries, having employed it myself with much advantage, but I object to the mysterious words, and the vain and unchristian ceremonies that accompany this new and singular practice, which is so simple that it requires no aid."

Lamorier, in 1732, read before the public assembly of the "Royal Society of Sciences of Montpellier," a paper on the use of common water for wounds and other injuries. The following is a quotation from this author:

"It is surprising that common water is not more in use for wounds; perhaps the remedy is too common. The public value lightly what nature gives us in profusion, but places a high estimate on that which is scarce, or comes from afar off, or is perchance dearly pur-

chased, or is involved in mystery. Many also think that a remedy so simple as water can have no efficacy. To remove these prejudices I have made many experiments: among others, three in the month of January last, upon three men, of whom one had an old ulcer upon the outer side of the ankle, of the size of the palm of the hand. The second, a soldier of the regiment of Medoc, had received a blow from a saber upon the back of the hand, which had cut the extensor tendon of the thumb and fingers, and had separated the two bones of the metacarpus which sustained the little and ring finger. This wound was followed with fluxions and abscesses which involved almost all of the forearm. The fever and the drying of all his body caused serious apprehensions that he would die. The third, another soldier of the same regiment, had received a sword-cut across the forearm, which had opened the artery that lies between the bones. Much blood was effused among the muscles, and extensive suppuration occurred. A copper boot was constructed, in which was placed common warm water, for the purpose of immersing therein the ulcerated leg; in this bath the patient rested the limb an hour each day. A few days after, the hard borders melted away, the cicatrix advanced insensibly day by day, and he was completely cured. Two machines of sheet iron were also constructed, in which the two soldiers could comfortably immerse the arm from the hand to above the elbow. By bathing their wounds in water, suppuration became much more healthy; they were able to move the fingers with greater ease; the pain and the fever diminished daily; in a word, they were entirely cured."

At about the same time Lamorier was advocating the use of water in France, Theden, a distinguished surgeon in the armies of Frederic, king of Prussia, was likewise making use of it in his practice. He gives an interesting case of the cure of a subordinate officer of the regiment of Budembrok, suffering from a violent inflammation of one of the lower limbs, which was enveloped in cloths wet with cold water, and kept constantly moist. He relates also that, having been pricked in the end of his finger by his bistoury, in opening a fistulous depôt in the anus, the pain, slight at first, soon became intolerable. The disease propagated itself along the forearm and attacked the elbow joint, which became very painful. The limb swelled considerably, and fever was lighted up. Finally, in a short time, the progress of the malady was such that he determined to have his arm amputated. But being reminded of the good effects of cold water, he wished before submitting to this operation to make a trial of it; and the success was so remarkable, that contrary to his expectation he was promptly and completely cured.

In 1786, Lombard, a French writer, published a "Summary of the Properties of Simple Water employed as a Topical Application in the Cure of Surgical Maladies." The following is an extract from this able author :

"The mode of action of cold water," says Lombard, "being known by daily experience upon sound parts, it is easy to understand what must be its effects upon wounds in general; and it is proper to say that, during the access of the inflammation, to which contused and lacerated wounds are principally subject, it is absolutely necessary to repeat the application often, to prevent the *increase of heat and desiccation* (drying). The coolness of the water, also, while it tempers the heat, obviates congestions in the affected vessels. Consequently the suppuration is infinitely less and more prompt, as the following history will prove :

"Christophe Hebert, a fusilceer in the regiment of Alsace, company of Ruttenburg, aged about twenty years, of a delicate temperament, received, the 9th of February, 1785, a cut from a knife, which severed the extensor tendons transversely, and also the metacarpal bones which sustained the last three fingers. He was immediately taken to the hospital.

"The mode of dressing consisted in placing the hand upon a pallet, so that by the aid of a crucial bandage, we could retain the fingers in place after they had been adjusted. This appareil was simply moistened with cold water, with express injunctions to renew it as often as the patient discovered in the limb a certain degree of heat. The hemorrhage, although quite copious at first, soon ceased. On the third day the hand was a little swollen, but the pain was so slight as not in the least to discompose him or disturb his sleep, and the wound had such a healthy secretion as to permit us to regard the swelling as of no consequence. Suppuration progressed regularly without becoming excessive, and was at all times healthy. The dry lint employed in the last dressings completed the cicatrization which the continued use of cold water had so well commenced; and the soldier left the hospital on the 19th of March perfectly cured, and without having experienced a single unfavorable symptom."

In another connection the same author speaks thus concerning the effects of water :

"One of the principal advantages of simple water over other dressings in common use, such as compound fomentations, cataplasms, and unguents, is its cleanliness, which contributes not a little to the cure. To render the use of water still more efficacious, it is proper each time the dressings are renewed to wipe gently the part with a piece of soft

and dry lint. This is considered a point of great importance among skillful surgeons."

Baron Percy, a French surgeon of celebrity, had an excellent opportunity of observing the effects of water in 1785, at Strasbourg. A number of men were severely wounded in proving the cannon at this place. A miller of Alsace undertook their cure, by the leave of the intendant of the province, with *blessed water*. The wounds were all cicatrized (healed) in six weeks. A second proving of the cannon wounded thirty-four men. They were dressed with common water by Lombard, the surgeon-in-chief, by which means they were all cured: The progress of the wounds was witnessed by Baron Percy, then a surgeon-major of cavalry. The success on this occasion produced a pamphlet from Lombard, in 1786, "On the Properties of Simple Water as a Topical Application in the Cure of Surgical Diseases."

In the "Dictionary of Medical Sciences," the same author gives the following narration:

"Among the kind of miracles which I have seen wrought by water, in the wounds from fire-arms, I will instance the cure of nearly sixty young volunteers of a battalion called 'Louvre,' which, having left Paris on the first day of December, 1782, was ordered, on Christmas day, to the assault upon Montagne-berte, near Greves. The enemy, placed upon a height, made upon the battalion a well-sustained fire, and most of these young men were wounded in their feet. Many were taken to the military hospital of Sarrelouis, of whom only a few could be saved without amputation. The others remained in the convent of Consarrebruck, with two German surgeons, who were charged with their care. By my advice, and, perhaps, in default of other remedies, the attendants bathed their feet incessantly, and showered them with water moderately cool, covering their wounds with compresses constantly moistened with the same. No other dressings were used, and I attest that only four died, of whom two died of adynamic fever, which disturbed and interrupted the treatment of the wounds with water, one of colliquative diarrhea, and the fourth of tismus. All the others recovered rapidly. Several had not even ankylosis, although their feet had been traversed in every direction, complicated with tearing of tendons, aponeuroses, and ligaments, and with splintering of the bones, sometimes of the tarsus, sometimes of the metatarsus."

Baron Percy, we are told, always afterward employed warm or cold water, according to the season, in the treatment of wounds. He says they often had from six to eight thousand wounded in their hospitals. "His experience," Dr. Macartney observes, "can not, therefore, be questioned; and so strong was his conviction of the utility of this

treatment, that he said he would relinquish military surgery, if he were prohibited from using water."

The celebrated French surgeon, Larrey, whom Bonaparte declared to be the most benevolent man he ever knew, relates in the following manner the advantages he derived from the use of water in the campaign in Egypt:

"One would be astonished, without doubt, to learn that, with a few sea biscuit, a little good water, which was carried with each wounded man, and by the use of brackish water only for their dressings, a very great number of these individuals, suffering under severe wounds of the head, of the breast, of the abdomen, or deprived of some of their limbs, crossed the deserts which separate Syria from Egypt, a distance of about sixty leagues, without any accident, and with so much benefit that most of them found themselves cured when they reached this latter country."

Briot, a distinguished military surgeon, was also much pleased with the employment of water, which he regarded the remedy *par excellence* in the dressing of wounds received upon the field of battle. He observes:

"The general method of dressing which we employed consisted in doing nothing without a motive. We used with success, and almost always to the accomplishment of perfect cures, *cold water*, in wounds made by small-arms; also in cases of stupor, in wounds of tendons, of aponeuroses, of capsules, and of membranes; and *tepid water* in those made by fire-arms, and which were suppurating."

Among the most notable cases of the cure of gun-shot wounds by water are those reported by Dr. Treille, after the battle of Baylen. He remarks:

"I obtained, seven years ago, the most happy effects from the indiscriminate application of pure water upon every variety of gun-shot wounds. A very extraordinary circumstance compelled me to employ this means alone. I confess that, at first, I was not without some solicitude as to the results, but I was quickly reassured by my success. The facts were these: After the battle of Baylen (Andalusia), I remained upon the field, the only surgeon to take care of five hundred wounded. Deprived of all medicines, I had all the wounds washed with pure water. I continued my dressings in this way during twenty-one days that we remained upon the field of battle, receiving nothing from without but some linen and provisions. As it would have been impossible for me alone to dress five hundred wounded, I arranged them in three sections, and dressed one section each day, and they dressed themselves the other two days. Only seven or eight wounds became gangrenous, and I had but two cases of tetanus.

"When attention is given to the circumstances in which I was placed, it will be apparent what we ought to think of simple water in the treatment of recent wounds. Here were five hundred wounded lying upon the ground from the 19th of June to the 10th of July (1808), under the broiling sun of Andalusia, having nothing whatever for shade but the thin branches of the olive trees, deprived of the consolatory hope of ever again seeing their own country, and given up to the mercy of the inhabitants of Sierra Morena, who were all in arms and highly exasperated."

Sanson, a man of ample experience, makes the following remarks in an article on "Water," in the "Dictionary of Practical Medicine and Surgery," published in 1831 :

"With water I have seen cured, by first intention, contused wounds, accompanied with more or less laceration and stretching of the parts ; I have been able to save most persons upon whom I have practiced amputations, or other grave operations, from the fever called traumatic ; indeed, I have been able to cure, without amputation, and without active inflammation or copious suppuration, many persons having fractured limbs complicated with wounds, and projection of the fragments."

M. Lacorbiere, of Paris, published a work in 1837, in which he introduced the authority of M. Alquié, concerning the effects of water as a remedy for wounds. He says :

"I have, under a multitude of circumstances, derived advantages *almost marvelous*, from the action of cold water, and from ice, in cases of severe traumatic lesions. In 1823, when I directed the medico-chirurgical service of the hospital of Perthus, I attributed to this means the cure of several gun-shot wounds situated in the feet and hands. In the case of a drummer of the eighth regiment of voltigeurs, whose right foot had been traversed by a ball, breaking the first cuneiforms, and producing great disturbance of the parts, I could only avoid serious accidents by the diligent application of cold water to the wounded member.

"Especially in large contused wounds this means been useful. When I was surgeon-major of the sixth regiment of dragoons, a captain of this regiment, M. David, received at Pontivy a kick from a horse upon the middle of his right leg. A large wound, four inches in length, resulted from the tearing of the inner half of the gemellus and the integuments. The periosteum along a portion of the tibia had been scratched by the iron, which had made an indentation in the inner side of the bone. It was a horrible wound ! Ice-water applied continuously, during sixty hours prevented completely all immoderate inflammatory

action, and this extensive solution of continuity united almost without suppuration. It appeared that we had the power to regulate the inflammation precisely to the condition necessary for reunion."

"Later, also, we are glad to find high authority for the use of simple water in the treatment of wounds.

"Lukewarm water," observes the illustrious Louis, "is, of all medicaments, the most simple. Yet we derive from it benefits without number. *Lukewarm water* relaxes parts which are overstretched, opens the pores; the particles of water insinuate themselves into the vessels, dilate the fluids, and increase the diameter of the small invisible vessels; they facilitate the flow of tumors, and open passages to substances which need to be expelled. It is for these reasons that Paré recommended fomentations of lukewarm water, in several places, and especially in the thirtieth chapter of the fifteenth book, upon fractures."

Professor Macartney, of Dublin, one of the most able among modern writers on surgery, makes the following observations concerning the effect of the water-dressing:

"Some surgeons now profess to use water-dressing as a substitute for poultice, by which they show their ignorance of the nature and operation of the remedy. A poultice is made of materials which, in a term far short of its renewal, becomes sour, and thereby renders the poultice, after the first few hours, an irritating application. The greasy substances which are added to prevent the poultice from adhering to the skin, do not always answer the end, and soon become rancid. A poultice favors the formation of pus, and causes a throbbing or pulsating pain, and a feeling of tenderness in the part, which are the natural attendants on the process of suppuration. It imbibes the pus it serves to create, and thereby becomes more irritating. A poultice, before it is many hours on, is a mixture of sour farinaceous substance, rancid oil, and pus, oppressing the part by its weight, and beginning to adhere round its edges to the skin, creating the cause of constriction.

"In order to judge of the effects of poultices," continues this author, "it is only necessary to visit a hospital, where they are much employed, before the surgeon comes round, when the sufferings of the patients will be sufficiently obvious, and to contrast this state of feeling with that which arises after the poultices are taken off, and the wounds and ulcers bathed for some time with tepid water; the soothing and comforting effect of which is better known by the patient than the surgeon, and therefore they prolong it as much as they can.

"Water-dressing has not only better, but very different effects from

poultices; it either prevents or diminishes the secretion of pus. A wound may at first yield a little purulent fluid, but in a short time this will be furnished in so small quantity as hardly to stain the lint. The pus even from an ulcer rapidly diminishes under water-dressing. I remember a case of very extensive ulcer of the leg to which I applied it; the patient pulled off the dressing in the night, because, he said, 'it was stopping the discharge;' he conceiving, like many surgeons, that no open surface could heal without suppurating. Granulations, also, which are rendered exuberant by the poultice, are either never formed, or exist in a very slight degree under water-dressing.

"Instead of the throbbing pain produced by a poultice being excited, all pain is removed by the use of water. A man in a fight with another had the nail of his thumb bitten through near the root. The water-dressing was applied. A day or two after I met him with a poultice on his thumb. On inquiring why he removed the first dressing, he said there was no use in keeping it on any longer, as it took away all his anguish, 'he supposing a poultice the proper application for the cure.' In a word, the tendency of water-dressing (if it be properly conducted) is to induce the cure of wounds and ulcers, not requiring excitement, by the appurimating or modeling processes before described.

"Dr. Billing, senior physician of the London Hospital, also recommends this remedy. 'The German water-dressing,' he says, 'has much the advantage over the poultice; the piece of lint dipped in water is lighter than the poultice; the oiled silk over all retains the moisture; and the whole does not spoil the sound skin, as the poultice often does. If poultices be too long applied, proud flesh will form, either from a superfluous growth of healthy granulations, or of such as are weak or spongy.'

"Professor Mutter, of Philadelphia, in notes to a recent work of Professor Liston, one of the first surgeons of Europe, agrees with the latter in the superiority of the water-dressing in wounds and injuries. 'In lacerated wounds, to which Mr. Liston refers in the text,' says Dr. M., 'no dressing is comparable to water, in some form or other, and for several years I have employed as a first dressing nothing else. In summer I use cold, in winter warm, and apply it as recommended by Liston and M'Cartney, viz., after cleansing the wound and approximating its edges, whenever this is proper, pledgets of patent lint, dipped in water, are to be gently laid upon its surface, and the whole covered with a piece of oiled silk (flannel is quite sufficient) to prevent evaporation. In summer I have found it best not to apply the oiled silk, as it keeps the part too hot, and in its stead apply two thicknesses of



wet lint, which will retain the moisture much longer than one. An assistant should, also, about every half hour, pour a spoonful of water over the dressings, but without removing them. Thus treated, I have seen the most terrific lacerated wounds from machinery or gun-shot heal most rapidly by the first intention. Only a few weeks since, I treated the son of a professional friend, who had received a severe lacerated wound, with the loss of a portion of two fingers, from the bursting of his gun, by the cold-water-dressing, and nearly every fragment of skin that could be placed in a proper position, united by the first intention.'

"Professor Liston observes: 'The time was when all wounds were covered over—and perhaps are yet in some places—with pledgets of lint, with linen spread with some sort of healing or drying ointment, as it was stupidly called; this again was covered over with a quantity of tow, then compresses were placed over that, and a bandage over the whole. This was the plan adopted in wounds of every part of the body, and a very filthy and disgusting practice it was. We do not require to use tow or compresses; a simple roller, carefully applied, to retain the dressing—the water-dressing, the most simple of all—is generally all that is necessary.'

"In a recent and able work entitled, 'Minor Surgery, or Hints on the Every-day Duties of the Surgeon,' by Henry H. Smith, M.D., we find the following cases, which were reported by Mr. Gilchrist, of Aberdeen, in the 'British and Foreign Medical Review' for March, 1846:

"1st. A man received an injury by the machinery in a large paper-mill, which laid open the wrist joint. The hand was half separated from the forearm, the tendons were torn, and the inferior end of the radius, which is naturally related to the carpus, was exposed. The arm and hand were placed straight on a pillow, the wound was cleaned, and two stitches taken; a pledget of cloth, soaked in cold water, was applied, and a bandage rolled, not too tightly, round the hand, wrist, and forearm; a large basin of cold water was placed conveniently by the bedside, and directions left to apply fresh-soaked cloths over the bandage every two or three minutes, to prevent any heat or inflammation ensuing. No inflammation took place, the modeling process was uninterrupted, without suppuration, and an excellent cicatrix formed in less than a fortnight.

"2d. A girl had the whole of the soft parts on the palm or surface of the four fingers as it were scraped off by the machinery, in a flax-mill; the tendons were torn, and the phalanges exposed at different places. Each finger was dressed as follows every day: being first bathed in cold water, a piece of soft cloth was placed round the finger, and a narrow

roller to keep it applied. When the fingers were all thus dressed, a larger cloth soaked in cold water was wrapped round them together, and changed as frequently as the slightest tendency to become heated reappeared. The modeling process advanced steadily without suppuration, and cicatrization was completed in about four weeks. The fingers gradually acquired flexibility.

"3d. A little boy had scrofulous disease of the bones of the ankle joint, on account of which I amputated by the flap operation, below the knee. Two stitches were used for two days; a strip or two of plaster, and cloths wrung out of cold water, were the sole applications. The wound was whole in a week. Other amputations have been similarly treated, with equal success.

"4th. A girl received a sharp instrument into the ball of the eye at the Woodside Works. The cornea and sclerotic coat were ruptured, the iris was lacerated, and protrusion followed. Rest in bed, continual persevering use of cloths wrung out of cold water, and simple laxative medicine constituted the treatment. The treatment was effectual in preventing inflammation, which was clearly the only indication in the case. The termination was as favorable as could be under the circumstances.

"These cases," observes the author, "are strong arguments in favor of this simple and ancient remedy, and might be supported by numerous others under our own observation, did it seem necessary."

I might, indeed, fill a good-sized volume with facts and arguments showing the superiority of water as a remedy for wounds, but the foregoing are sufficient.

#### OF WOUNDS.

Wounds are of different kinds, accordingly as they are made. In medical language they are called *incised*, *punctured*, *lacerated*, or *contused*, as the case may be.

*Incised wounds* are those made with a clean cutting instrument, drawn more or less quickly across the part. These generally bleed more at first than the other kinds of wounds.

*Punctured wounds* are those made with some sharp or pointed article or instrument, such as a knife, nail, pin, splinter of wood, or thorn. These are to be regarded as the most dangerous of all wounds; they are more liable to implicate blood-vessels, nerves, viscera, and other deep-seated parts; the parts thus wounded are more liable to be stretched and torn, and are, consequently, more disposed to inflame and suppurate, matter is also more liable to burrow extensively, it not having a chance to escape; foreign bodies are more likely to be car-

ried into greater depths, and they are more liable to be attended with lockjaw than the other kinds of wounds.

*Lacerated wounds* are made by some substance or thing that tears the flesh. They are attended with less hemorrhage than the incised, because their surfaces being irregular renders it easier for the blood to coagulate, and because blood-vessels when torn do not bleed near so readily as when they are cut. A man may have his arm torn off by machinery, and suffer no loss of blood, while a comparatively small cut may cost him his life. But in most respects lacerated wounds are much worse than those of a clean cut; they are more liable to inflame violently and slough; they are often complicated with foreign bodies, and are much more liable to be attended by lockjaw, and other constitutional disturbance.

A *contused* or *bruised wound* signifies one that is made with some blunt substance, which does not break or penetrate the skin. Such wounds may be very slight, and such as demand no attention whatever, or they may be so severe as to endanger or destroy life.

If a patient faints from loss of blood, or from shock, he is to be laid down in a horizontal position, and treated as we would in any other case of syncope; and it is of importance to observe that a meddling treatment, as is by far too often practiced, should not be allowed. It is far better to give nature a reasonable time to rally the patient. But I shall speak more particularly of hemorrhages a little farther on.

The healing of a wound depends much upon its cleanliness and freedom from foreign substances of every kind. If there are any particles of dust or dirt in it, such as can not be seized with a pair of forceps, or other instrument, a stream of tepid water from a syringe, by pouring, or by a sponge, will be the appropriate means. It is rather better to use the water tepid—that is, not quite blood-warm—than cold. But cold will answer the purpose, though not so well. The water should, if possible, be soft.

If there is any large substance in the wound, it is to be extracted with forceps, or by any other available means; and it should be remembered that all foreign substances, of whatever kind, not only prevent healing, but cause inflammation of the part. Hence, always the sooner they are removed the better.

We should not be in a hurry to close a wound, particularly if there is any danger to be apprehended from hemorrhage; the action of air upon a cut surface tends to arrest and prevent bleeding. It is well, also, in such cases, before the wound is closed, to place a wet linen compress upon the raw flesh, or within the wound, as this will have a soothing effect upon it, and promote the subsequent healing.

In the treatment of wounds in which the flesh is separated, it is an object of importance to bring the cut surfaces as much together as possible, and in such a manner that they may be retained thus in apposition. For this purpose a compress of old soft linen cloth may be laid upon the wound, and retained by a bandage encircling the part. Another method is to sew the wound together, using one or more stitches as the case may require, remembering always that the less the better, provided the object is attained. A common sewing-needle of sufficient strength will answer the purpose in these cases, if there is no other at hand. It should be oiled before it is used, and enough of the skin should be included to hold the parts together, that is, so that the thread shall not tear out. Each stitch is tied by itself, as seen in fig. 154. The stitches may be taken out in from one to two or three days, by carefully clipping the thread at one side, and pulling gently at the knot.

Fig. 154.

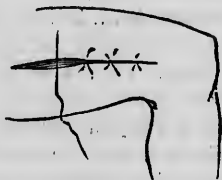


Fig. 155.



WOUNDS OF THE LEG.

In some cases sticking-plaster alone will be amply sufficient to retain the parts of a wound in juxtaposition. The article surgeons use may be obtained at the drug stores, and it would be well for every family to keep a roll of it. It is warmed carefully till it melts, and is applied—having been previously cut into strips—across the wound, as may be seen in fig. 155. In order to make the dressing more secure, other strips of the plaster may be applied crosswise of those first applied.

The reason why the edges of a wound should be kept in as close contact as possible is obvious. The less space we leave for nature to fill up, the sooner and more easily she can accomplish her task.

In cases of punctured wounds, we should not be in a hurry to heal the surface, but rather prevent it. It is better for such a wound to heal from its bottom, and for this object it is preferable to keep the surface open. It is even advisable in some cases to put a pledget of lint within the lips of the wound to keep it from closing. In all cases it is useful to keep a wet cloth upon the part, and at the temperature most agreeable to the feelings of the patient.

When a part is cut clean off the body, it should as soon as possible be cleaned, by washing it in pure water, as well also as the wound, and then be replaced, and kept in its position. This plan will not always succeed; but it is now well known that a part once separated may grow on again.

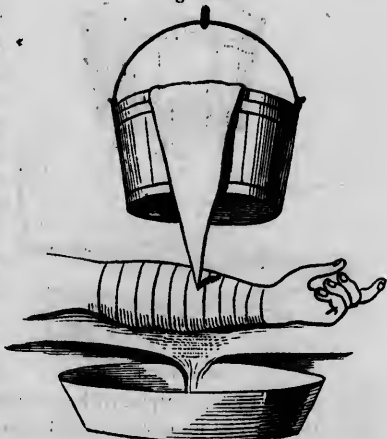
We shall in the next place enter into an explanation of THE MODES OF APPLYING WATER TO A WOUND, and the RULES that should govern us in this practice.

A very simple and, in many respects, useful mode of applying water to a wound, is by the compress. We take old soft linen, wet it in water, and lay it one, two, or more thicknesses, according to the case, upon the part. We make it a cooling, a warming, or midway application, according to the feelings of comfort. The compress is removed from time to time, and is changed or re-wet, as the case may be; or by means of a sponge, cloth, spoon, or the like, water is pressed or poured upon the cloths, so that a proper degree of moisture is kept up. There are some objections, however, to this method of wetting the dressing; the affected part, if great care is not observed, may become at one time too hot, and at another too cold. It is, moreover, in some respects an inconvenient way of applying the water, as, for example, in the night.

As an improvement upon this method, what is termed in surgery IRRIGATION, has been recommended. There are several ways of accomplishing this object, one of which is represented in fig. 156.

We will suppose it a case of scald, burn, or wound upon the arm. The affected limb is laid upon a pillow or cushion, with a piece of oilcloth over it, arranged in such a way as to conduct the water off into a basin or other vessel, as seen in the cut. A bucket of water is suspended over the bed, or set upon a table near the patient. The inflamed part having upon it some lint or soft linen cloths, the water is conducted to these by means of a strip of woollen or other cloth, wide at one end and pointed at the

Fig. 156.



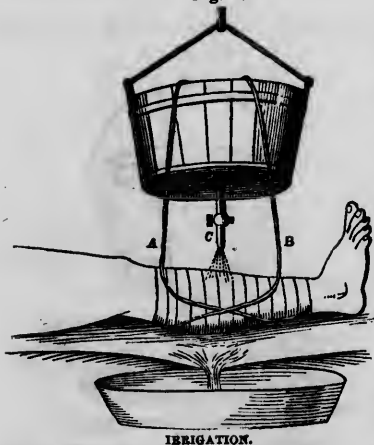
IRRIGATION.

other, and which, hanging from the bucket, the wide end being immersed in the water, conducts the fluid to the lint or compresses, on the principle of a syphon. The cloth should be of considerable width at one end, and cut so as to be of even taper toward the point. The amount of fluid thus conveyed will depend partly upon the weight and size of the cloth, and partly upon the depth of the vessel from which it is to be drawn. The temperature of the water may easily be regulated, according to the exigencies of the case. This method is, however, more suited for the cooling application, since, in the night, for example, warm water might become too cold. But in the refinement of French surgical practice, the fluid is sometimes kept at a given temperature by means of a spirit lamp under the bucket, which in these cases must be of tin or other metal.

Another method of employing irrigation is to suspend two ropes of candle-wicking from the water in the bucket to the dressings, as may be seen in fig. 157. But this is not so convenient or effectual an application as the triangular piece of cloth before described. The ropes of candle-wicking act of course upon the same principle, but are less useful in practice.

Still another method is to conduct the water from the bucket to the

Fig. 157.



dressings, by means of a tube with a stop-cock, as seen in the cut. In case no stop-cock could be obtained, the irrigation might be regulated by inserting a cork or wooden plug in the tube, so shaped as merely to allow the water to drop. A little ingenuity will answer in all these cases. A good workman works well with the tools he has, as the old saying is.

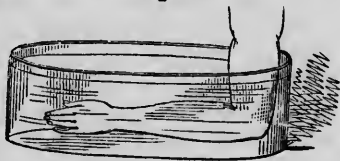
A method of treating wounds, sometimes employed by the French, which is to have the inflamed part naked, allowing the

water to fall in drops upon it, has several objections. It is, in the first place, liable to be an uncomfortable one to the patient. Water, falling in drops in this way, is liable to cause an irritation of the part. In the second place, the patient is obliged to keep very nearly the same position constantly, which is of itself a great objection to the method.

The IMMERSING of a wounded part in water, either warm, tepid, cool, or cold, according to circumstances, exerts a greater influence on the sensations than any of the

Fig. 158.

other modes. This is easily accomplished by having some such vessel as that in fig. 158. The fluid is thus made to cover a larger part of the surface, and in all cases the soothing effect of a local application is in proportion to the



ARM-BATH.

extent of surface on which it is made to act. It is not merely the wounded or inflamed part that should be brought into contact with the fluid, but as much around and beyond it as may be necessary. An objection to this plan of immersion is, that the inflamed part must, in many cases, be made to hang downward in order to immerse it, which causes the blood to pass by gravity more freely than it otherwise would, to the place affected. The object is to drive away the superabundance of blood, and hence keeping the part in an elevated position is often the preferable mode.

It should not surprise us to find water, simple as it is, the best and most agreeable of all applications, when we recollect how important a part it exerts in all vital processes. It composes by far the larger portion of the living body in health; and through its influence all the vital processes are carried on. Besides, there is nothing in the wide world that can at all compare with it in promoting the restoration of the growth of a wounded part, and simply for the reason that no other substance in nature holds so important a relation to the principle of life.

Water, when thus used locally, acts in various ways, which, to elucidate the subject more fully, may be explained as follows:

1. It regulates the *temperature* of the part, if we go according to the feelings of comfort; and it brings it to that degree of temperature which is the most suitable for its healing, as well as freeing it from pain and other disturbance.

2. It permeates the finest tissues, and is absorbed freely, thus preventing all undue heat deep among the tissues, as well as upon the surface. It is better than any poultice, because it is *more easily absorbed*; it is less liable to change of properties than any other application—less cumbersome, and in all respects better, as experience abundantly proves.

These conclusions are, I admit, simple and very short. They are, however, the true ones, and such as will serve to guide us in an intel-

ligent employment of that part of practice which we have been considering. Truth, when we once perceive it, is always simple; and the plainer we can make it to our minds, the better will we be guided in that ever-benevolent calling, HEALING THE SICK.

We see, then, from the foregoing remarks, that in a multitude of cases in which there certainly ought to be no need of people running for a doctor, thereby incurring an often worse than useless expense, any one may, after a little study, safely and judiciously apply the water-dressing. This may be done in most cases of bruises, scalds, burns, cuts, etc., especially where there is not, by reason of much hemorrhage, need of an experienced surgeon. Have a number of thicknesses of clean soft linen, if no better means are at hand; keep them constantly wet, and if there is no uncomfortable degree of heat in the part, cover the wet linen with dry, and the whole with flannel, if need be, to insure warmth. In short, STUDY THE PATIENT'S COMFORT. Common cloth covering over the water-dressing is much better than India-rubber or oiled silk. Wounds will always heal sooner, and in a more friendly way in all respects, if we use no air-tight coverings; such do not allow the proper exhalations to go on, they being impervious to air and moisture. I repeat, REGULATE THE APPLICATION ACCORDING TO THE FEELINGS OF COMFORT.\*

In *fainting, occurring from the loss of blood*, we have a beautiful operation of nature, one which strikingly exemplifies the goodness of Deity in framing our mortal bodies with capabilities of preservation. and which are here most visibly set forth. A man receives a wound in the artery of the thigh, called the femoral artery, we will suppose; the blood is pouring forth at a rate which, if continued, would very soon destroy life. But directly he faints; the heart ceases to beat, or nearly so; respiration becomes suspended, and the blood ceases to flow. This allows a clot to form at the bleeding orifice, for running blood can not coagulate. Gradually, again, the heart begins to beat and the blood to circulate, although for a long time with less force than before. In this way, then, by the coagulation or clotting of the blood at the bleeding orifice, life is often, though not always, saved. Nature may not always be competent to the task, but she always does her best in

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\* "A great advantage of the water-dressing," says the late distinguished Dr. McClellan, of Philadelphia, "is, that its temperature can always be accommodated to the condition and sensations of the patient. If he be robust and plethoric, and liable to high vascular excitement, cold water will reduce the irritation and prevent inflammation. On the other hand, feeble and irritable patients, who become chilly and nervous after wounds and operations, can be fomented with warm water to the great relief of their sensations, and the comfort of the wound."



her efforts to save life, by arresting the heart's action and the circulation of the blood.

### HEMORRHAGE FROM WOUNDS.

The most important thing, often, in regard to the management of wounds, is to look well to the bleeding. If this is but trifling, little is to be done; but if it is copious, prompt and effective measures must be at once instituted, or death may soon close the scene. And, I remark, it is in such cases as these, in which a popular work, such as this aims to be, is especially useful. Many a life has been lost, merely for the want of a little information which such a work is supposed to afford.

One of the first and most important things to be done in all cases of hemorrhage is to keep the patient cool. From time immemorial the application of cold has been known to be one of the most effectual of all means for arresting bleedings, of whatever kind. That cold is one of the best possible constrictants, the Indians of our country have always well understood; for, in their rude surgery, if such we may call it, they go at once and plunge themselves into cold water, whenever a severe hemorrhage occurs from a wound. In this simple way the constriction produced upon the orifice of a bleeding vessel or vessels is found sufficient to restrain the flow of blood. But more of this in another place.

If a wound be situated on the skull, upon the face, or over any bone of the body, the bleeding may generally be arrested for the time, and not unfrequently permanently, by simply pressing the finger or fingers (see fig. 159), or a cork or pad made for the purpose, firmly upon the part. A piece of cork or a pad may also be bound on tightly with a roller, in place of manual pressure. See fig. 160.

In some cases, however, this method will not succeed. In such an event, the wound should be examined, and, if it is practicable, its edges should be

lifted up, in order to expose the bleeding vessel. Once it is discovered, the point of a little hook—tenaculum, as it is technically termed

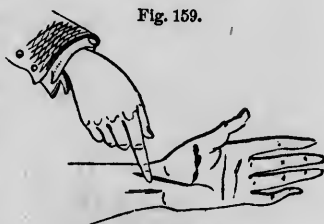


Fig. 159.

ARRESTING HEMORRHAGE.



Fig. 160.

ARRESTING HEMORRHAGE.

—should be dipped into the wound as near the bleeding vessel as may be, and drawn up so that a strong thread of linen or silk may be passed around the part below the instrument. There may be more than one bleeding vessel; if so, the others are to be secured in the same way.

But if a wound has happened in one of the limbs, and is followed by much and continual bleeding, the means which I have before described can not, in general, be depended on. The object then will be to arrest the whole current of blood passing into the part. This, for the time, is very easily done; and one who has little knowledge of either the medical or surgical art, if he will have about him sufficient presence of mind, and not allow himself to be frightened at a little blood, can easily accomplish the object.

Every one should remember that the forearm, or part of the arm below the elbow, has two bones, the radius and the ulna, and that the part of the arm above the elbow has but one bone, called the humerus; and also that the part of the leg below the knee has two bones, the tibia and the fibula, and the part above the knee but one bone, called the femur. Now, if a severe wound occurs upon the foot or the hand, or half way up the forearm, or leg toward the knee, and we should attempt to arrest the flow of blood by placing a handkerchief or other ligature about this part of the limb, we should be very apt to fail, as one or the other of the bones of the limb would be quite certain of shielding the artery from the necessary pressure. But if we pass the handkerchief or other ligature about the limb where there is but one bone—that is, above the knee or elbow, as the case may be—and tighten it sufficiently, we readily effect our object.

Fig. 161.



ARRESTING HEMORRHAGE.

When, therefore, the bleeding is below the middle of the upper arm, or the middle of the thigh, we tie a handkerchief or cord—the former would be the better article—passing it once or twice about the limb, and as far above the wound as the circumstances of the case will allow, and then place a stick beneath the circular bandage thus formed, and with it twist the handkerchief, or whatever is used, until its tightness is sufficient to arrest the blood. The twisting should only be

continued so long as is necessary to stop the bleeding, otherwise the soft parts below the handkerchief may be unnecessarily bruised. See fig. 161.

But if the hemorrhage should occur high up on the thigh or arm, ligating the limb can not be had recourse to, in which case it may be important to know what to do until a surgeon can be called. If the wound is of the arm, a bystander should at once press his thumb firmly into the neck, *behind the middle of the collar-bone*. This will arrest the flow of blood through the great artery of the arm, as it first comes out of the chest. It will not be possible long to continue this pressure with a sufficient degree of force, simply with the thumb, and, for this reason, it will be necessary to use the handle of a door-key, or some such article, which should be wrapped in three or four folds of linen previous to using it in place of the thumb. In this simple way the hemorrhage can be kept in check till a surgeon can be obtained, no matter how long it may take.

If the wound should be high up on the thigh, that is, above the part which could be ligated, pressure is to be made *immediately below the crease of the groin*, in the same manner as that just described for the neck. In this latter case, the force is applied more easily than in the former, because, the patient lying on his back, the pressure is made directly upon the groin, at a right angle with the body.

Wounds in other parts of the body than those I have referred to, if deep-seated and severe, are always more or less dangerous. In many of these cases, it is not within the power of art to arrest the hemorrhage.

*Deep wounds of the neck* are particularly dangerous; but in all such cases it can do no harm, and may possibly save life, to plug up the wound as soon as possible with lint, rags, or other similar substances, and maintain at the same time firm pressure upon the part.

*Wounds that extend into the chest* are always dangerous, though not necessarily fatal. If a whole day passes after an injury of this kind, the patient surviving, there may be good hope of recovery. Death will seldom result from such wounds after forty hours have elapsed. Even *wounds of the heart* are not necessarily fatal. There are numerous cases on record in which stabs or musket wounds of this organ have healed, both in men and animals, and without any ill effects supervening.

*Wounds of the abdomen penetrating within its cavity* are likewise very dangerous. In all such cases, it is to be supposed that people will get the best and most experienced surgeon they can; for, with the best that

human skill and art can do, there is yet much to fear from lesions of this kind.

In all cases of the foregoing kinds, as well as in hemorrhages generally, we should remember the constringing power of cold. The patient should always be kept in a cool place, and cooling means—such as a cold bath, when this is admissible—cooling or wet compresses should be used. The pouring of cold water, not immediately at the spot wounded, but at some little distance from it, and nearer the heart if it can be, should be practiced. Holding the elbows in cold water for a continuance, will often arrest a severe bleeding of the hand. Cool bandages, and the pouring of cold water upon the lower extremity, can be made to arrest bleeding from wounds in the foot.

#### OF HEMORRHAGES GENERALLY.

*Nose-bleed—epistaxis*, or *hemorrhage from the nostrils*, appears to be more frequent than that from any other part. It happens to persons of all ages and conditions, but is probably, on the whole, more frequent in females. It is very irregular in its occurrence, duration, and progress. It comes on at any time of the day or night, and may last only a minute or two, or several hours, and even a day or more. It often proves a source of relief to headaches, fullness of blood in the head, and various other disorders. It is seldom alarming in extent, although cases have occurred, it is said, in which death has resulted from it. In some cases, persons are evidently enfeebled and injured by the great quantity of blood lost in this way; but nose-bleed, as a general thing, need excite no alarm, although if it tends to become excessive, the proper means should at once be taken for arresting it.

As to the *symptoms* in nose-bleed, there is not unfrequently sensation of “weight, tension, and pain in the forehead, giddiness, and general headache, buzzing in the ears, dizziness, disordered vision, redness of the eyes and nostrils, flushing of the face, and coldness of the hands and feet.” There is also a feeling of fullness, heat, and sometimes itching in the nostrils. These symptoms are not, of course, all of them present in any single case, but vary, both as to number and severity, indefinitely. The blood is usually of a bright red color, and coagulable. It flows from one nostril only in most cases, but sometimes from both. It generally flows anteriorly only, but sometimes posteriorly, finding its way into the mouth, and even not appearing at the nostril at all. In most cases it issues only drop by drop, but in others it bursts forth in a continuous stream. If the hemorrhage is considerable, portions of the blood may be swallowed sufficient to cause nausea and vomiting. In such cases, the mistake is sometimes made of supposing

that the hemorrhage is from the stomach. Small portions of blood, too, it is said, sometimes find their way into the glottis, in which case hemorrhage from the lungs may be incorrectly surmised. If nose-bleed takes place while the person is asleep, there may be some difficulty in determining its source; but, on blowing the nose, it may at once be known from whence the blood issues.

The *causes* of epistaxis are various. Time of life exercises an influence in causing epistaxis, it being most liable to happen at about the age of puberty. It appears sometimes to result from pregnancy. It often attends polypus and other diseases of the nostrils. An overheated state of the blood is very apt to bring it on. A blow upon the nose, picking it, sneezing, violent straining or lifting, a sudden jar of the body, stooping down too suddenly, standing upon the head, having the cravat too tight, too great exposure of the head to fire or the heat of the sun, as well as powerful and sudden mental emotions, such as anger and the like, may bring on this hemorrhage. Bleeding at the nose is not an uncommon occurrence in fevers of a low or typhoid kind, and it is apt to follow the sudden check of the menses, bleeding from piles, or any other habitual discharge. An apoplectic state of the system and scrofula predispose persons to nose-bleed.

*Treatment.*—In most cases of epistaxis *no treatment whatever* is needed, since it is certain to cease spontaneously. In those instances where it is manifestly a symptom of relief or benefit to the system, as in headache, fullness at the head, etc., it should not be interfered with, but allowed to go on to its fullest extent. But whenever the blood has been overheated, or there is a tendency for it to pass to a debilitating extent, means should at once be taken for arresting it. In order to do this, the patient should be placed in a cool place, and in a comfortable posture, the sitting being, as a general thing, the most appropriate. The head should be either erect, inclined a little backward, or at least not too much forward. Every thing tight about the chest and neck should be loosened or removed, and it is useful to fan the patient whenever it is agreeable to his sensations. At the same time, *tepid* water, not cold, as many assert, should be freely sniffed up the nostrils. Simultaneously, also, measures should be applied freely to the head and the nape of the neck, and the hands and feet are to be placed in cold water. If there is much febrile excitement in the system, speedy measures should be taken to remove the pyrexia. The sitting-bath, shallow-bath, plunge, pail douche, cooling-pack, dripping-sheet, affusion, and water drinking are all appropriate measures. We can, indeed, hardly go amiss in the cooling applications, provided we do no violence to the system. The way in which cold, thus applied at a

distance from the bleeding parts, acts, is to produce constriction of bleeding vessels by sympathy. It is a beautiful operation of nature, and shows well how admirably the means is adapted to the end. Even a cold key, or other piece of cold metal, placed on the neck, will often thus arrest epistaxis, by sympathy.

So powerful is cold, when properly applied, in its effects to arrest hemorrhage, I have no doubt that, in most, if not all of these cases of severe bleeding, where it has been necessary for the physician or surgeon to plug the nostril, if it were applied to a sufficient extent, it would of itself arrest the difficulty. Plugging, however, is evidently useful in many cases, for which reason the ways of doing it should be understood. To plug the nostril, a piece of sponge, surgeon's lint, or fine, soft rags, formed into a cylindrical shape, and moistened with water, or, as some prefer, an astringent liquid, may be used. Some are very partial to the scrapings of sole leather, and these, no doubt, form as good a plug as any thing. It is said that Abernethy never failed in arresting nose-bleed, by winding a piece of moistened lint round a probe—and a knitting-needle would answer quite as well—so as to form a cylindrical tube, passing this along the floor of the nose for its whole length, then carefully withdrawing the probe, and allowing the lint to remain for three or four days. Any one who has a good share of resolution and a steady hand can perform this little operation; and the patient should remember, that although it may be in some degree unpleasant, it causes no severe pain, and can do him no possible harm. Another plan is, "to introduce a portion of hog's intestine, properly prepared, and closed at one end, deeply into the nostril, then to inject some cold water forcibly, and tie the other extremity of the tube." Abernethy's plan, however, is a more simple one, and, on the whole, to be preferred.

Dr. Négrier, of Angers, France, has adopted a very simple method of treatment in this affection, which he is said to have employed frequently, and with uniform success. The method consists in causing the patient, in a standing posture, suddenly to raise one or both arms perpendicularly upward, and to retain them for a short time in this position. If one only is raised, it should be that of the side from which the hemorrhage proceeds; and then the patient may compress the bleeding nostril with the other hand. In young children, the physician or some one must perform these offices for the patient. It is said that this simple method has always succeeded, even in very bad cases, when all other means had failed. The elevated position of the arm should be sustained a few minutes, in order to give the blood in the bleeding orifices time to coagulate. Dr. Négrier explains the result of this

method on the principle that, as the blood, in the erect position of the arm, requires a much greater force to sustain it than when the arm is pendent, the energy of the heart's contraction must be in the same proportion diverted from the carotid artery leading to the head to the subclavian in the arm.

If the hemorrhage arises from an over-heated state of the blood simply, it may be doubtful whether the above method will succeed. It is, however, well worth knowing; and if it does not prove so effectual in all cases as has been claimed, it may yet prove a valuable aid in the use of other means.

*Hemorrhage from extracting teeth* sometimes becomes both troublesome and alarming, and lives have even been lost by it. In treating it, the *general* methods we adopt in other hemorrhages are equally applicable here. If cooling the mass of the circulation does not arrest the bleeding, the cavity must be well plugged with lint, cotton, or the scrapings of sole leather. With right, general, and local treatment, it is believed that no patient need ever be lost by this kind of hemorrhage.

*Hemorrhage from the mouth—stomatorrhagia*—is, on the whole, a rare affection. Not only the gums, however, but all the parts of the mouth, are occasionally subject to spontaneous bleedings, which, though not in general dangerous, are sometimes attended with fatal results. Besides, also, a wound of the mouth may be received which would cause a fatal or dangerous loss of blood. Dividing the frenum linguæ, for tongue-tie, has also been known to cause fatal hemorrhage. Severe hemorrhage may also occur from the buccal cavity as an effect of scurvy, malignant fever, etc.

In the *treatment*, care must be taken to ascertain from whence the blood issues. In some cases it is swallowed, so that it causes coughing or vomiting, in which case we might mistake the hemorrhage for that from the stomach or lungs. If the mouth is washed out well with water, we can usually discover from what part the blood issues. Once the source of the difficulty is ascertained, it is to be treated on the same general principles as other hemorrhages.

*Hemorrhage from the throat* is not a common occurrence. It is to be managed in the same way as hemorrhage from the mouth.

*Hemorrhage from the lungs—hæmoptysis*—though often alarming to the patient, seldom destroys life at the time; but in many cases, though not all, it is indicative of fatal disease of the lungs. It is characterized by the throwing up of frothy, florid blood. If the blood is dark colored, it is supposed to come from the stomach. It is generally preceded by cough, dyspnoea, with heat and oppression in the chest. Its *remote* causes are such as relate to passive hemorrhages generally; the *exci-*

*ting* are such as lifting or straining; over-exercise; too much and too loud speaking; blowing wind instruments; becoming over-heated, etc.

The *treatment* must be like that for other internal hemorrhages. Pyrexia is to be subdued; cold wet-cloths are to be freely applied to the chest, and frequent sips of cold water, iced or otherwise, and small pieces of ice swallowed. The feet are to be kept warm, and the patient quiet. Experience teaches us that patients bear cold to an almost unlimited extent in this affection. Dr. Elliotson, who is high authority in the old school, says of the treatment of hemoptysis: "It is safe to apply ice in front of the chest;" that "we ought always to do it;" and that "we should throw cold water on the chest." True, Dr. Elliotson believes in other things, bleeding for example, besides; but I introduce his remarks because there is a great prejudice in this country against the use of cold water in this affection, even among physicians.

I will remark, for the encouragement of the reader, that I have known a considerable number of persons who have bled at the lungs, many years since, some of them, and who are now in the enjoyment of good health. Hemoptysis is, however, I admit, always to be looked upon as a serious evil, especially if it be profuse.

*Hemorrhage from the stomach—hematemesis*—is generally preceded by a sense of general uneasiness, and a feeling of oppression and a dull or sharp pain in the epigastrium. Fainting may, also, be present. The blood, which is dark, passes by vomiting, and sometimes by stool. It is seldom an immediately dangerous affection, but ought always to put the patient well on his guard as to his general health.

The *treatment* is the same, externally, as that for hemoptysis, except the local cooling should be practiced over the abdomen. As to swallowing ice and other cold things, I maintain that such applications, made directly upon a bleeding surface, only increase the difficulty. Besides, we can cool the mass of the circulation sufficiently in other ways. The cold hip-bath, if the patient is not too feeble, is an invaluable means.

Some, in the treatment of this affection, feel great concern in regard to the blood that accumulates in the bowels. Blood always helps itself away soon enough in such cases; and life has been destroyed simply by giving a dose of oil "to purge away the clots." Beware!

*Hemorrhage from the bowels* is to be managed in all respects like hematemesis. Give no cold injections. If there is thirst, drink tepid water.

*Hemorrhage from Piles*.—This sometimes takes place to an alarming extent, in which case we treat the same as in hematemesis.

*Uterine hemorrhage* is likewise to be treated on the principle of inter-



nal hemorrhages generally. Cold, wet towels, often repeated; the folded four-double wet sheet about the body; drinking very cold water and the cold sitz-bath, even, if necessary, do noble work in this complaint. But pour no cold water from a height, as some of the "regular" books strongly recommend; a shock would only tend to increase the trouble.\*

*Hemorrhage from leech bites* becomes every now and then a serious affair, and life even has been lost in this way; but the time is not far distant, when leeches will be forever banished from medical practice.†

To arrest this kind of hemorrhage, the following plan, in connection with that of cooling the mass of the circulation generally, is, probably, one of the best.

"Take a small pinch from the felt of a beaver or other fur hat; pile it on the bite; or, if there be several points, pile one respectively on each, and spread over the whole a piece of thin muslin, drawing it tightly, so that any blood which flows must pass directly through both; then with a fine sponge soak up the blood as it oozes out, and in a short time both felt and muslin will have become dried by the coagulation of the blood in the thin, fine meshes, and the hemorrhage arrested. The muslin may then be all cut away except the adhering points, which in the course of a couple of days will of themselves drop off, leaving the parts healed, and free from any such disfiguring marks as those which necessarily follow the cautery, caustics, or needles."

Fig. 162.



LEECH AND ITS BITE.

\* For a more full elucidation of this whole subject, I must refer the reader to my recent work, entitled "MIDWIFERY, AND THE DISEASES OF WOMEN," published by FOWLER & WELLS, NEW YORK.

† Professor Wood, of the University of Pennsylvania, in his "Practice of Medicine," asserts that the "bleeding from leech bites, especially those of the European leech, is profuse, and in children sometimes dangerous, particularly when there is a tendency to hemorrhage.

## CHAPTER XXI.

### OF FRACTURES AND DISLOCATIONS.

IN consequence of falls, blows, and other accidents, the bones of the body are sometimes broken, *fractured*, as we say in surgical practice. Some of the most dangerous of all accidents to which the human frame is liable, are of this kind. Hence, some degree of knowledge concerning fractures is a matter of importance to every one.

A fracture is said to be *simple*, when it is not accompanied with a wound of the flesh; *compound*, when the soft parts are wounded or torn so the broken bone protrudes; *transverse*, when the bone is broken square across; *oblique* when broken in an oblique direction; *longitudinal*, when split endwise; *comminuted*, when broken into several fragments; and *complicated*, when occurring in connection with the dislocation of one or more of the joints.

*Causes.*—The exciting cause of fracture must be either mechanical violence or muscular action; the former being by far the most common. The mechanical violence may be *direct* or *indirect*: direct, when it causes a fracture at the part to which it is actually applied, as in a fracture of the skull by a blow from a sharp instrument; and indirect, when a force is applied to two parts of a bone, which gives way between, as in the case of fracture of the clavicle (collar-bone), from a fall or heavy blow on the shoulder; the sternal or inner end of the bone is impelled by the weight of the body, and the acromial or outer end by the substance that comes against the shoulder. The bone thus acted upon by two forces gives way in the middle.

Almost any bone, if preternaturally weak, may be fractured by muscular action. This happens now and then to the humerus, femur, etc.; but still oftener to the olecranon and patella. But these accidents are far less common than those of the former kind.

The *predisposing* causes of fracture are numerous. *Original conformation*, by which, without any assignable cause, the bones become exceedingly brittle; *disease* of the bone, occurring more particularly in old people, in which the bone is absorbed to a mere shell filled with fat; *cancer of the bone*; *softness of the bone*, such as occurs often in old age; *disease*, as in bedridden people; these are the predisposing causes of fracture.

*Remarks.*—Few persons have any idea that the health of the bones

depends as much upon good habits and good general management as that of the other parts of the system. The osseous structure, it should be remembered, is formed from the blood, just as much as any other part of the living body. Hence it follows that the healthfulness of the bones depends upon the quality of the food and drink taken, and the habits of the individual, just as the healthfulness of the fleshy parts, and even the blood itself, depends upon these agencies. From infancy to old age, we are in no respect better rewarded for good attention to all dietetic and other hygienic habits, than in the securing of a firm and healthful condition of this framework of our bodies.

*Symptoms.*—In general, it is not difficult to determine a fracture. This is especially true of fractures of the leg, thigh, arm, and forearm. If any one of these parts is broken, particularly if at some distance from the end, the sufferer is incapable of lifting the part, and if by aid he attempts to do so, there is observed an unnatural bending and motion of the broken limb. There is often deformity, such as bending, shortening, or twisting of the injured member. One end of the bone may also be found to move independently of the other, or one part of it yielding when pressed upon. *Crepitus*, a grating sound, heard and felt when the broken ends of the bone are rubbed against each other, is also one of the most prominent among the signs of fracture. Besides these symptoms, there is usually more or less pain, swelling, and helplessness of the injured part.

*Treatment.*—It is not to be supposed that non-professional persons will be able to understand all the detail of treating fractures; but inasmuch as there are usually many things to be done before a physician can be obtained, it is well that the public be advised how to proceed in accidents of this kind. Besides, at sea, among the backwoods of our country, and in different parts, it is sometimes impossible to obtain medical advice at all in a case. I do not, therefore, assume here to give a full detail of all the methods of treating fractures, but only some general hints of importance to all who are liable to have to do with this class of injuries.

Fig. 163.



HURDLE.

If a person is found on the ground speechless, and we have reason to believe that some of his bones are broken, or if we know such to be the

fact, we must not handle him rudely, but in the most careful manner. If we find that the leg or thigh is broken, some means should at once be taken to convey the patient to the place where he is to be treated. A door, a window-shutter, or two or three boards cleated together, or, what is better, a blanket or coverlet fastened securely to four poles (see fig. 163) is to be used. Whatever mode is adopted, it should be made as easy as possible to the patient. When he is arranged upon the blanket, door, or other article, it is a good plan to place the broken limb close to

Fig. 164.



POSITION FOR FRACTURE.

the sound one, and tie them both pretty firmly together with two or three handkerchiefs. By doing this, great support will be given to the injured limb, and any movement of it is almost wholly prevented. After all is properly arranged, two or more persons should carry him, always keeping time as they step. This method of conveying a patient is incomparably better than by the easiest vehicle drawn by horses or other animals.

When the fracture is at the arm—above or below the elbow—it is less painful if the patient has the member in a sling, the forearm at right angles with the upper, the palm of the hand being turned to the body; and the sling should be wide enough to reach from the fingers' tip to the elbow. With this arrangement he can walk if his house is not too far off, and walking is less painful than to ride under such circumstances, especially if the roads are rough and the carriage hard. Or if he can not walk conveniently, he may be carried as when the leg is broken.

Fig. 165.



FRACTURE APPARATUS.

If the patient is to be moved far, an apparatus made by rolling a bunch of twigs, the length of the limb, in each end of a piece of strong sheeting, tied round after being applied by three or four pieces of broad tape will be of service. Or a case of pasteboard or leather may be used, being tied or bandaged upon the limb.

If the skull is supposed to be broken, no particular care is to be taken of the limbs, but the patient should be most carefully handled in all other respects.

*When should a bone be set?*—Usually, when a bone is fractured, people think that every thing depends upon getting the doctor *at once*,

that he may set the bone. It is always best to have good medical advice as soon as may be when it is needed ; but in regard to broken bones, it should be understood that there is generally no need of hurry, because it is not to be really *set* for a number of days—about one week, say, after it is broken.

Fig. 166.

At first, there comes on a good deal of pain, swelling, etc., which hinder keeping the bone in its place ;

these, however, should be combated as much as possible. At the end of about one week these symptoms abate ; and then it is that nature is ready to begin that beautiful process of healing of which I shall speak. The practice of the best surgeons now-a-days is to arrange the broken bone in as comfortable position as may be, applying cooling applications, and using, perhaps, a single splint lightly bound on (which can be taken off at pleasure) to keep the limb a little steady, attending to constitutional symptoms as they may arise, and after the swelling has subsided, then set at work with splints, etc., to keep the bone in its exact place until it has sufficiently united to sustain itself. I repeat, then, get a good doctor as soon as you can, when you need him ; but don't run yourself or neighbors out of breath *to get the bone set*.

The process of healing a broken bone is one of the most beautiful that can be conceived of. It happens in this wise : After the fracture of an ordinary bone, a quantity of lymph collects among the tissues surrounding the broken part. This in two or three weeks becomes converted into what surgeons call a provisional callus, which completely surrounds the broken part and adheres firmly to the bone, above and below it, thus keeping the broken ends in their proper place. In

two or three weeks more—the time varying according to the age, health, and other circumstances of the individual—the callus ossifies, *i. e.*, becomes bone. But it is not until several months have elapsed that the *ends* of the bone become really united. In a half year, less or more, the ossific union becomes complete, after which the *provisional callus* is absorbed or taken away. But it is not



FRACTURE APPARATUS.

Fig. 167.



FRACTURE OF THE LOWER JAW.

true, as some suppose, that a broken

bone becomes stronger than it was originally. Such is never the case.

We are next to consider fractures of various parts.

*Fracture of the nose* is not usually attended with danger, although the injury may be a severe one. It is readily known by the deformity caused. In adjusting this kind of fracture the depressed bone is pushed outward by introducing a catheter, pencil-case, or other smooth instrument within the nostril, the fingers being applied on the outside to support the parts. Wet compresses, to regulate the heat, are to be used.

Fig. 168.

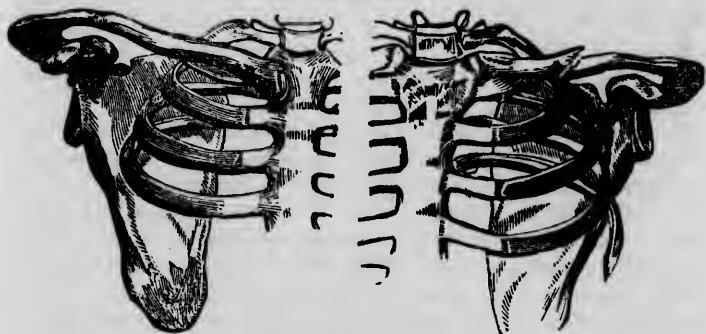


ADJUSTMENT OF FRACTURED LOWER JAW.

In *fracture of the lower jaw* (see fig. 167), the injury occurs usually at about the middle of the chin. It may, however, occur at any part. The difficulty is easily detected.

In adjusting this fracture, the jaw-bone must be depressed or elevated as the case may be, till the teeth are properly arranged, both as regards each other and the upper jaw. Afterward the jaw must be secured by a wide strip of adhesive plaster under the chin, and bandages in different directions as seen in fig. 168. It will be necessary, however, to allow the jaw a little motion for the purpose of introducing nourishment into the mouth.

Fig. 169.



FRACTURED CLAVICLE.

*Fracture of the clavicle*, or collar-bone, most frequently occurs at about the middle of the bone. (See fig. 169.) It is usually an oblique fracture, and may, if the patient is not very fat, easily be detected by passing the finger along the bone. The patient is unable to lift the arm of the side affected, and supports it with the other hand at the elbow. The shoulder sinks *downward, forward, and inward*, in consequence of the fractured ends of the bone sliding past each other.

This is one of those kind of fractures which any one of ordinary mechanical ingenuity can manage readily enough. In the first place, a pad about twice as large as a man's fist, and about twice as long as large, is to be placed high up in the armpit, and retained by a tape passing from each end of the pad over the neck, at which place there must be a cushion to prevent galling. Secondly, a firm bandage is to be passed two or three times round the body and the arm of the affected side, a little above the elbow, to keep the arm close to the body, which causes the bone of the arm to act over the pad as a lever in keep-

ing it in its proper place. The elbow is then placed in a firm sling, which is made to hold the arm well upward. (See fig. 170). The

Fig. 170.



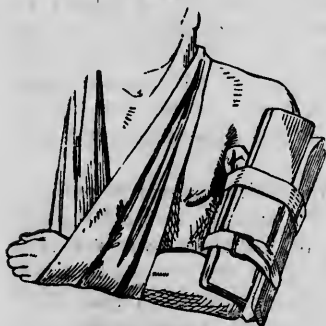
FRACTURED CLAVICLE.

effects of these appliances, when properly made and kept in their place, is to bring the shoulder upward, backward, and outward, which brings and maintains the bone in its normal position. The clavicle, unlike most bones, should be fully set at the very first, and the apparatus should be kept on constantly; otherwise, the broken ends of the bone will lap over each other, causing a drooping of the shoulder, for which deformity there would be no remedy. It is necessary to wear the appliances four or five weeks.

*Fracture of the ribs* may in general be readily distinguished by placing the

hand over the part where the injury has been received, or the pain is felt; the ends of the broken bones will be found creaking against each other. The surgical method of treating the difficulty is to wind a linen or other bandage of six or eight inches wide, and five or six yards in length, tightly around the chest, so as to prevent as much as possible any motion of the ribs in breathing. The end of the roller or bandage is fastened by sewing rather than pins, which are liable to get loose; and it is well if all the turns of the roller are stitched together in like

Fig. 171.



FRACTURED ARM.

manner. The bandage is to be changed occasionally, and worn about one month.

If there should be much heat or pain at the injured part, instead of the dry bandage cooling compresses must be used till all fever abates. It will be remembered that Priessnitz cured himself of a bad fracture of the ribs, which surgeons declared must prove fatal, by cold swathings about his chest. At the same time he pressed out his ribs as well as he could, but there was always a large

cavity remaining as the effects of the injury in his side. To this one circumstance of Priessnitz's curing himself of fractured ribs, the pres-



ent popularity of water-cure is mainly owing. I am also acquainted with an elderly physician of our own country, who declares, that he must have died of a severe fracture of his ribs, if he had not learned from the works on water-cure, the mode of using swathings, wet sheets, etc., all of which he resolutely put into practice in his own case, greatly to the relief of the pains and sufferings arising from the injury.

*Fracture of the upper arm, or humerus*, is known by the limb being bent, shortened, and helpless, and by the crepitus which is easily felt. In treating it, four splints about three finger breadths wide, with pads, are necessary. The pads should be a little wider and longer than the splints, so that they may extend over the end to be tacked fast. After the first swelling has passed off, the fracture is reduced by drawing the elbow downward while the shoulder is supported. After this, the whole limb is to be rather loosely bandaged; a padded splint, long enough to reach from the armpit to the knuckle of the elbow, is then applied, together with the three other splints on the different sides of the limb. These are kept in place by a bandage, or, what is cooler, tapes or straps. (See fig. 171.) It is important, also, to keep the elbow close to the body, and the hand in a sling. The apparatus must be continued four or five weeks.

In *fractures of the forearm, radius, and ulna*, if both bones are broken (see fig. 172), it is easy to distinguish the injury; but if only

Fig. 172.



Fig. 173.



Fig. 174.



FRACTURED FOREARM.

the radius is broken (see fig. 173), or the ulna (see fig. 174), it is not so readily determined. The fracture is to be treated on the same

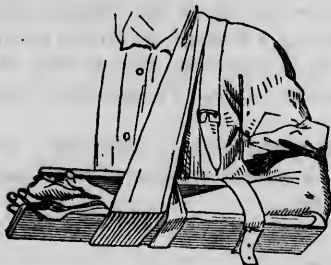
Fig. 175.



FRACTURE OF LOWER END OF THE RADIUS.

general principles as the upper arm. If one bone only is broken the other helps to keep it in place. If both are fractured, two splints are

Fig. 176.



FRACTURED FOREARM.

in general sufficient, extending from the ends of the fingers to the elbow (see fig. 176). But if it should be necessary, three or four splints are to be used. The whole are to be firmly secured, and the forearm should be kept in a wide sling.

In *fractured thigh-bone*, or *femur*, the thigh-bone being broken at some little distance from either end, the difficulty is known by the

unnatural bending of the part, and by the person being unable to lift the limb. It is, in some respects, a more serious accident than either of the others mentioned, but is not more difficult, on the whole, to treat. It may even be managed without splints, as follows:

The patient is placed upon a hard bed, which should rest upon boards laid across the bedstead. The broken limb is then extended, and a pad is placed between both the knees and ankles, after which the limbs are bound tenderly but firmly together, the knee of the well limb being a little uppermost, to prevent the broken one drawing up, as it tends to do (see fig. 177). The patient must be kept in this position long enough to allow the bone to heal, which will require about one month.

Another method is to use a single splint, half an inch or more in thickness, three or four inches wide, and long enough to reach from the armpit to an inch or two beyond the sole of the foot. The splint is measured upon the sound limb, and a hole must be cut in it to give room for the outside of the ankle. The patient lies upon a bed as be

fore, the limb having been previously bandaged, and then the broken limb is to be drawn down and made to correspond to the sound one. A roller is then applied from one end of the limb to the other, as also two or three times about the trunk, to keep every thing in its proper place. (See fig. 178.) Some persons, however, can not endure this straight position. A better method is the following :

Fig. 177.



Fig. 178

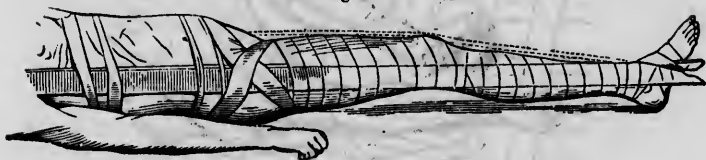
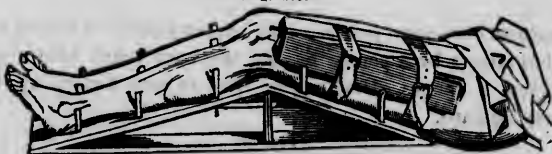


Fig. 179.



FRACTURED THIGH.

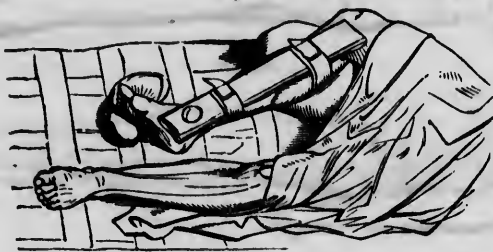
Two pieces of hinged boards, of the right length, are made to form upon another board a double inclined plane. (See fig. 179.) Over this, the limbs are to rest. Some pegs are also inserted into the boards at each side of the limb to keep it in place. The broken thigh is brought close to the sound one, and the knees and ankles are tied together with handkerchiefs. Pads are used between the joints and upon the boards, according to the patient's feelings of comfort. Short splints are then used upon the thigh, according to the necessities of the case. These appliances must be used from thirty to forty days.

In *fractures of the leg—tibia and fibula*—both bones being broken, it is an easy matter to distinguish injury ; if the small one only is fractured, it is not always so easy to ascertain it ; but it is not of great consequence to do so, for if the patient only remains quiet, as, indeed, he will be pretty certain of doing, because of the pain he will suffer in

attempting to move about, the healing will go on very well, in consequence of the shin-bone acting as a splint to keep the small bone in its place.

If both bones become fractured, the case is different. After the swelling has gone down sufficiently, the leg may be bandaged firmly, so as to keep the bones in place while the healing goes on. A preferable mode, however, is to use two splints two or three inches wide, according to the size of the limb, and long enough to reach from the knee to the sole of the foot. These are arranged in the usual way, and the knee is to be kept somewhat bent, as may be seen in fig. 180.

Fig. 180.



FRACTURED LEG.

*Fractured knee-cap—patella*—may happen from a log falling upon the part, but oftener by a person having the knee much bent under him, and being in danger of falling, he tries to save himself by throwing the body forward.

Fig. 181.



FRACTURED KNEE-CAP.

In order to keep the parts of the broken bone together, the limb must be maintained constantly as straight as possible. If the parts can be kept in complete apposition, the union is much more apt to be bony; if they are not, a ligamentous union only will be formed. After the

swelling has subsided, which is often very great, a couple of straps, rollers, or handkerchiefs are put about, one just above and the other just below the knee-cap, and these are made to come somewhat nearer together, by tapes from one to the other on each side of the knee. In this way the broken parts of the bone are kept in close contact with each other. This being done, the patient is to be "tied neck and heel together," and he must maintain the position as well as he can for about one month (see fig. 181), but he must not begin to make much motion with the limb short of about six weeks. If every thing has been well managed, he will gradually regain the use of his limb. In the treatment of fractures generally, it is to be observed that the affected part should be kept as cool as may be, and free from the weight of bed-clothing and other articles. In order to carry out these objects, what is termed a *cradle* may be used. It consists of some bent iron wires passed through three wooden strips, as may be seen in fig. 182.

Fig. 182.

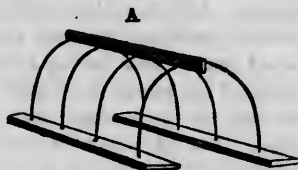
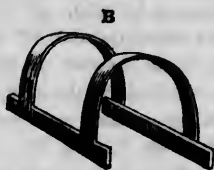


Fig. 183.



FRACTURE CRADLES.

Or one may be made by nailing two or three pieces of common hoops to two strips of wood, as in fig. 183. An ingenious person can easily make some contrivance of this kind in several ways. The *cradle*, it will be seen, is an admirable contrivance for keeping the bed-clothing off from a fractured or wounded part.

*Compound fractures*—those in which the soft parts are wounded in addition to the injury of the bone—are often very formidable accidents. It is advisable, in these cases, to make the fracture a simple one as soon as possible, by healing the wound. Here, again, as in all other wounds, the great superiority of the water-dressing over all others is clearly shown. It not only heals the part sooner than any other application can, but assuages the pain in a most remarkable manner, and is almost, if not quite, a perfect safeguard against that dreadful disease, tetanus, which is so often caused by a wound.

So, too, in causing a bone to unite the more quickly and firmly, water should be freely used upon the part, whenever this is at all practicable. True, we can not in all cases remove the splints, etc., to enable us to bathe the limb often, but in many instances this can be done.

After the bone is once healed, showering, ablutions, etc., will aid materially in restoring the lost energies of the part.

I conclude these remarks by relating an anecdote which used to be given by Hunter in his lectures, which proves admirably how well nature is calculated to act for herself, even under unfavorable circumstances.

A madman of Edinburg, being sometimes sensible, was allowed the privilege of walking in the garden of the madhouse with a keeper. He one day attempted making his escape while the keeper was at a little distance, and going to the top of the wall, which was but a little height from the ground on the side next the garden, jumped down on the other, where the ground being much lower, his fall occasioned a compound fracture of the leg. He was carried to the infirmary, the fracture reduced, and secured by the eighteen-tailed bandage and splints. He was very unruly all the time the surgeons were engaged in setting the limb; but as he seemed pacified afterward, they left him, hoping he might get some sleep. As soon as they had withdrawn, he very carefully took off the splints, bandages, etc., and placed them in the same manner on the sound leg. Then tearing a hole in the tick of the bed, he thrust the fractured leg among the feathers. When the surgeons came next day and took off the bandage, they were surprised at not finding any fracture. The physician who was present—as in those days it was customary for the physician and surgeon to visit together—asked the surgeon how this had happened. The surgeon replied he could not tell: he was certain there was a fracture the day before. At this the madman was very angry: “Pretty fellows,” he said, “not know when a leg was broken; but to bind up a sound leg for a broken one!”

The doctors then insisted on seeing the other leg, which the patient said was very well, and pulling it out from the bed, shook it at them, saying, “See! this is a sound leg.” Upon examination, they found that the feathers had become so clogged to it by the blood, as to keep the broken bone in place, and admit of his stirring his limb about. As the tension seemed in nowise increased, they thought it best to humor him, and let the leg remain as it was; besides, he would probably undo all their work. So to please him, they bound up the well limb, leaving the other to itself, and it did perfectly well, the feathers not falling off before the bone was healed.

#### DISLOCATIONS.

*Dislocation*, or *luxation*, in surgery, signifies the displacement of one or more bones from their proper situation; in other words, “a putting

*out of joint.*" Dislocations are *complete*, when the articular surfaces of the bones have wholly lost their natural connection; *incomplete*, when the displacement is only partial; and *compound*, when a wound communicates with the dislocated joint. A dislocation is said to be *accidental*, when it is caused by external violence; *spontaneous*, when it arises from disease of the joint. Dislocation may also arise from muscular action, as in the jaw, when this part is very much depressed; from elongation of the ligaments about a joint; and from paralysis of an antagonist set of muscles. But mechanical violence is by far the most frequent cause of this difficulty.

Dislocation is, in most cases, readily distinguished from fracture. In *fracture* the mobility of a part is *increased*; in *dislocation* it is *diminished*. A *dislocated* joint is usually more *prominent* in one part and *depressed* in another. A *broken bone* is usually *shortened*, while a *dislocated* one is not. In *fracture* there is *crepitus*, or a grating sound of the ends of the bone upon each other when moved; but in *dislocation* no such symptom is observed. Dislocation is most apt to occur in the grown person, while fractures near the joints are more apt to happen in the young.

Dislocations are among the most complicated and troublesome injuries which the noble art of surgery has to encounter. In the present instance, I shall only speak of some of the more common among the difficulties of this kind, and give some advice, which it is presumed the general reader will be interested in.

It is to be especially noticed, that in all cases of dislocation, the sooner the difficulty is remedied, the easier for the operator and the less painful, and the better for the patient in all respects. If you can reduce the dislocation yourself, or if a friend can do it for you, do it, and the more promptly the better. But if you are obliged to get a surgeon, lose not a moment's time in doing so.

When there has once been a dislocation of a joint, the difficulty sometimes recurs from slight causes on the part of the one who has suffered it, or from accidental occurrences. Dislocation of the jaw, of the arm into the armpit, and dislocation at the hip-joint, happen in this way.

We are, in the next place, to speak of some of the more common forms of dislocation.

*Dislocation of the jaw* may occur either on one or both sides, but more commonly the latter. It may be caused by a blow on the chin when the mouth is wide open, but oftener from gaping, when the lower jaw being violently and quickly drawn down, its ends slip from their sockets, and the jaw becomes firmly fixed, keeping the mouth "wide open;" the face is lengthened, the expression vacant, and the power of speak-

ing lost; "any attempt at utterance produces only strange and incomprehensible noises, and the oddest contortions of the countenance possible, which are often rendered exceedingly ludicrous by the various shifts the person employs in endeavoring to make himself understood."

Fig. 184.



DISLOCATION OF THE JAW

Fig. 185.



DISLOCATED JAW.

dislocation, the patient wear a bandage passing over the top of the head

The reduction of dislocated jaw may be easily accomplished in the following way: The patient sits flat upon the floor, leaning his head against the operator's knees, who stands behind him; two pieces of hard wood or a couple of fork handles are placed in the mouth, one at each corner of each side of the mouth, pressed back as far as they will go, and held by an assistant; the operator then bends over the patient (see fig. 185), and making a firm loop of his hands, places them under the chin and draws it upward, in such away as to nearly close the mouth; at the same time the chin is pressed backward, upon which the jaw assumes its proper

place. Another method is, by having napkins wrapped about the thumbs which are then placed between the molar teeth, so as to enable the operator to press the ends of the jaw downward; at the same time the fingers are placed under and at the outer end of the chin; as the thumbs are pressed *downward*, the chin is pressed *upward* and *backward*.

When the jaw has once slipped out, it is much more apt to do so again. Hence the patient should for some time be careful how he opens his mouth, and especially how he gapes or laughs. Some surgeons advise, that after this



and under the chin, so as to keep the mouth quite closed, for a week or two.

This accident has sometimes led to certain amusing mistakes. It is related of Abernethy, that he used to entertain his class with an illustration of this kind, which he gave in his own humorous way, as follows :

An officer was dining with a party of friends, and his laughing faculties having been excited, he was rattling along and laughing heartily, when suddenly he became dumb, or, rather, he ceased to be able to speak; his mouth remained wide open, and he uttered only a vast variety of strange sounds. At first it was supposed he was endeavoring to amuse the company by these uncouth noises; but soon it was perceived to be no joke, and that he was really unable to close his mouth or speak.

After a little while, he managed to make them understand he had dislocated his jaw, and that it would be necessary to send for a doctor, who in due time arrived, and set about replacing the jaw. But whether it was he did not know how to perform the operation, or whether he put in one side, and while attempting to put in the other, the former slipped out again, as it will sometimes do, he could not manage the job at all, and the officer, who had frequently suffered from the same accident before, and had it replaced without difficulty, getting angry, and at the last furious, at his bungling, induced the doctor to change his tack, and declare the sufferer was mad. This of course alarmed the whole party, who seized on the unfortunate soldier, carried him to bed, and put him in a strait-waistcoat, while the doctor prepared for shaving his head and putting on a blister. The poor fellow, finding by this time he could not hope by further exertions to make his condition understood, or free himself from his tormentors, and the doctor still persisting he was mad, he at last made signs for pens and paper, which, as it was thought he could do no mischief with, and that his asking for them was rather a sign of returning reason, they were brought, and he immediately wrote: "For goodness' sake send for Mr. —, the surgeon of my regiment; he knows what's the matter with me." The letter was dispatched—the surgeon soon arrived—the dislocation was quickly put to rights, and the ignorant blockhead who had caused all the turmoil slunk off in disgrace.

*Dislocation of the arm into the armpit* may often be reduced at once, by almost any one who has some degree of courage and a good share of strength. The method is as follows: Both the patient and the operator lie down upon the floor, the feet of the one are to be at the shoulders of the other, as represented in fig. 186. A folded towel is placed in the patient's armpit, against which the operator's foot rests

while he makes extension powerfully with both hands grasped around the patient's wrist. Before proceeding to "pull hard," it will be of great service if the operator can divert the patient's attention, and then seizing the favorable moment to apply the force of a sudden move vigorously. In this way often the luxation may be reduced very quickly, which is known by the bone entering its socket with considerable "snap."

Fig. 186.



DISLOCATED ARM.

There is another method of reducing this dislocation, which, if the patient will but have courage and persevere, can often be accomplished

Fig. 187.



DISLOCATED ARM.

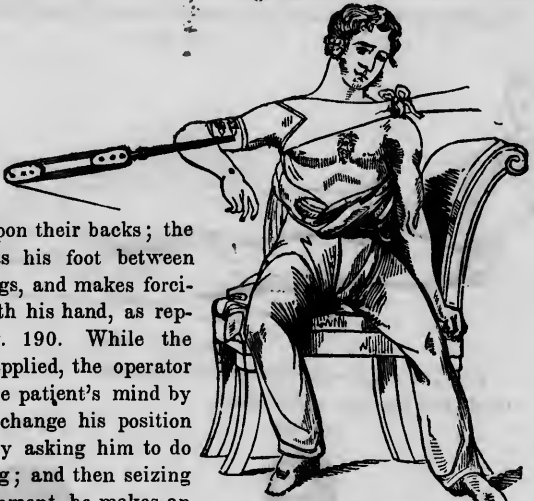
at once, with the saving of a great deal of pain. Suppose the accident to have happened in a field, as is often the case—he goes at once to a gate, "bars," or rail-fence, places his affected arm over the upper rail (see fig. 187), grasps the lowest one he can reach, holds fast upon it, letting as much as possible the whole weight of the body hang down upon the other side of the fence; at the same time he is to work the body about somewhat in different directions, thus causing its weight to hang as much as possible upon the shoulder. In this way the bone can often be made to slip into its place. The remedy is a rude one, it is true; but it acts upon strictly scientific principles. So that it is effectual is all we need.

Another plan of reducing dislocation of the arm, that of extension and counter-extension, made by means of the pulley and sheet, or large bandage, is represented in figs. 188 and 189.

*Reduction of dislocation of the thigh* should always be attempted at once, even before it is possible to get a surgeon, if some one who is resolute enough can be found to make the attempt. In some cases he

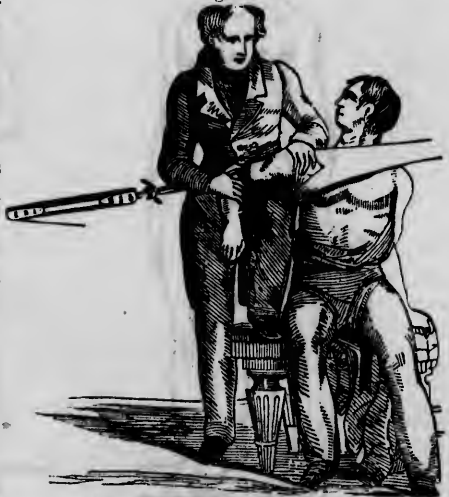
will succeed; and if he does not, no harm is done. The method is similar to that adopted for the shoulder. The patient and operator

Fig. 188.



EXTENSION AND COUNTER-EXTENSION.

Fig. 189.



REDUCTION OF RECENT LUXATIONS.

both lie down upon their backs; the latter then puts his foot between the patient's legs, and makes forcible traction with his hand, as represented in fig. 190. While the force is being applied, the operator should divert the patient's mind by asking him to change his position somewhat, or by asking him to do some little thing; and then seizing the favorable moment, he makes an extra effort, at the same time rotating the limb somewhat, when the bone may enter its place. As in the case of the shoulder, this will be known by a "snap."

It sometimes happens that persons are a good deal troubled by supposing that the hip has been dislocated, when in fact no such occurrence has taken place. It is a pity, on the one hand, to be too slow in getting the doctor in case a real dislocation has taken place; and it is also a pity to be wor-

ried and troubled in sending for medical aid when there is no need of it. The annexed cuts will serve to aid in determining whether a luxation of the hip has been caused in any given case.

Fig. 190.



DISLOCATED THIGH.

Fig. 191 represents the *upward* luxation. The limb appears shortened, and the toe turns inward.

Fig. 191.



UPWARD LUXATION.

Fig. 192.



DOWNWARD LUXATION

Fig. 192 represents the *downward* luxation, in which the limb appears lengthened, the toe turning outward.

Fig. 193.

Fig. 194.



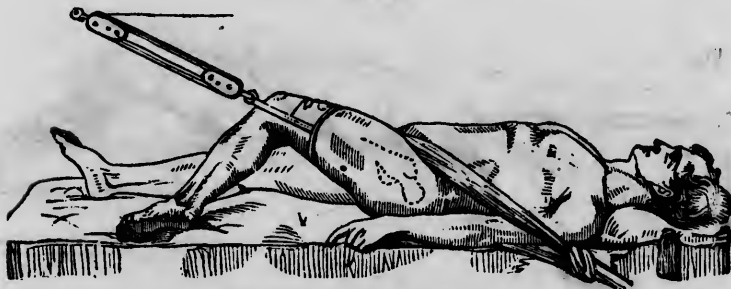
BACKWARD LUXATION.



FORWARD LUXATION.

Fig. 193 represents the *backward* luxation, in which the limb is moderately shortened, the toe turning inward.

Fig. 195.

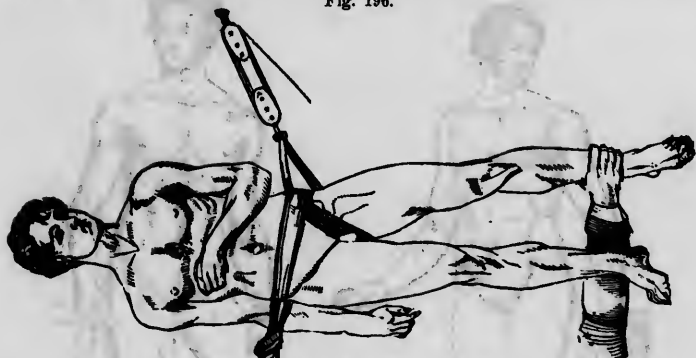


REDUCTION OF UPWARD LUXATION.

Fig. 194 represents the *forward* luxation, in which the limb is moderately shortened, the toe turning outward.

The manner in which the force is to be applied in reducing these several dislocations is shown in figs. 195, 196, 197, and 198

Fig. 196.



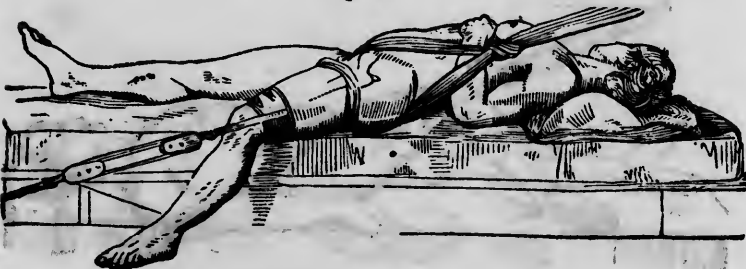
REDUCTION OF DOWNWARD LUXATION.

Fig. 197.



REDUCTION OF BACKWARD LUXATION

Fig. 198.



REDUCTION OF FORWARD LUXATION.

*Dislocation of the wrist* may occur in different directions. If both bones are dislocated, the hand is either thrown *forward*, or, as probably oftener happens, *backward*, as is represented in fig. 199. If but one

Fig. 199.



DISLOCATED WRIST.

bone is "put out," the hand is twisted in its position. Dislocation of the wrist is distinguished from a sprain by the greater degree of deformity in the former. Oftener than otherwise, there is a fracture in connection with this dislocation. This the surgeon is to treat according to the proper method. The luxation is reduced by simple extension.

Fig. 200.



DISLOCATED FINGER.

*Dislocations of the thumbs, fingers, and toes* are among the most difficult of reduction, in consequence of the strength of the tendons and ligaments concerned, and the small size of the part upon which extension is to be made. Luxation of the thumb is especially difficult of reduction, but the accident fortunately does not happen often. In making extension upon this part, a piece of strong tape is usually fastened upon the thumb by a knot called the *clove-hitch*. The force should be applied in the direction of the palm of the hand.

Fig. 201.



CLOVE-HITCH.

Luxations of the fingers and toes may often be reduced in a manner represented in fig. 200. Some are in the habit of winding wet tape closely about the thumbs, fingers, and toes

before the extending force is applied. The *clove-hitch* is useful here as in various other dislocations. See fig. 201.

In dislocations, it should be remembered, the ligaments are usually ruptured. If it is a *compound* dislocation, the accident is always to be looked upon as a dangerous one. The inflammation of a joint under such circumstances often becomes so great (when treated in the ordinary methods), that it has been considered necessary to amputate the part; and many a limb has been lost in this way, which, if the surgeon had understood the effects of water in reducing inflammatory action, and in healing wounded parts, the operation would have been avoided, and the member saved. In some cases, however, the joint may be so badly wounded, the nerves, blood-vessels and ligaments so much torn, and the whole joint crushed, that amputation above the wounded part may be a less evil, and, in fact, the only rational ground of hope. It is to be observed, also, that in some accidents of this kind, such as often occur about railroads, the patient usually dies whether amputation is performed or not; still, he should have the advantage of even the smallest chance, if he desires it.

In simple dislocations, we see often how admirably nature is calculated to make the best she can of a bad case. Thus, if a dislocation is left unreduced, "the lymph thrown out around the head of the bone in its new situation becomes converted into a new socket and ligaments, and a very useful degree of motion is often acquired; meanwhile, the old socket gradually becomes filled up." But in this same connection, also, we see the dignity and superiority of man's intellect, for in most cases of simple dislocation he is enabled by art to reduce it, and thus to do incomparably better for nature than she is able to do for herself. When a dislocated joint is properly reduced, it in time becomes as well as ever; whereas a new joint, formed by nature, is far less useful, although much better than no joint at all.

In regard to reducing luxations generally, there is one important fact that should be especially remembered. In many cases, the greatest difficulty that presents itself is the inflammation and swelling arising from the injury. A thorough and judicious application of cold water, not only to the part affected, but the whole body, is of the greatest service. In compound luxations, the effect of water is most admirable.

In no respect, also, is water more useful *as a tonic* than in its effects upon a joint that has been "put out." In many cases there remains for a time, longer or shorter, a good deal of debility after the joint has been properly "set." Now, in all such cases, cooling wet compresses, showerings, pourings, wet-hand frictions, etc., are highly salutary, and should by no means be neglected.



## CHAPTER XXII.

### OF VARIOUS ACCIDENTS, CASUALTIES, ETC.

#### RUPTURE—HERNIA.

THE term hernia, as commonly employed, signifies a protrusion of some portion of the abdominal viscera. The young and the old of both sexes are liable to this ailment. The infant may be born with it. About one in eight of adult males are found to have a rupture of more or less consequence.

Hernia is said to be *umbilical*, *inguinal*, *ventral*, etc., according to the position it occupies. It is said to be *reducible*, when it can be returned into the abdomen; *irreducible*, when it can not be; and *strangulated*, when the protruded intestine is constricted in such a way as not only to preclude its return into the abdomen, but also to prevent the passage of feces through, and the proper circulation in it.

*Causes.*—The *remote* cause of rupture is a weakness of the abdominal muscles, attendant upon a state of general debility; or there may be a malformation of the parts. It is a singular fact that hernia is very apt to be transmitted from the parent to the child. The *exciting* causes are, excessive crying, as in cases of children, coughing, sneezing, vomiting, lifting heavy weights, straining at stool or otherwise running, jumping, etc., in adults.

*Symptoms.*—These will be found to vary, according to the nature of the protrusion. Usually the larger the rupture, the less liable it is to return into the abdomen. It usually appears of a sudden, in the form of a swelling at or near the groin, after some violent exertion. If it is but a small swelling, it usually disappears when the patient lies down. It is apt to fill out if he coughs. There is often a dragging sensation at the pit of the stomach, and an inclination to throw up the food, especially if the hernia be of the irreducible kind. If the hernia become strangulated, there is flatulency, colic, tightness across the abdomen, and a desire to evacuate the bowels, with little or no power to do so; vomiting, also, of foul matters from the intestines takes place. "If this state of things continue, the inflammatory stage comes on. The neck of the sack becomes tender, and tenderness diffuses itself over the tumor and over the abdomen, both

of which become very painful and much more swelled. The countenance is anxious, the vomiting constant, the patient restless and despondent, and the pulse small, hard, and wiry. After a variable time the constricted parts begin to mortify. The skin becomes cold, the pulse very rapid and tremulous, and the tumor dusky red and emphysematous; but the pain ceases, and the patient having, perhaps, expressed himself altogether relieved, soon after dies." In some cases death takes place in a few hours after the protrusion; in others not for many days.

*Treatment.*—In cases of children there is generally a good prospect of curing hernia, provided the proper means be taken. With good general management, there is always a strong tendency in the young to outgrow the difficulty. If the hernia is at the navel, a pad larger than the aperture should be fastened over it by long strips of adhesive plaster extending in different directions, but which should be removed daily to allow of the parts being washed with cold water to strengthen them. If the protrusion is at another part of the abdomen, it will often be advisable to put a truss upon the child, of which the physician will be the best judge. This should be continued for some time after the difficulty appears to be perfectly cured.

Whenever an adult finds a swelling at the groin, he should at once send for or go to his physician. Many a one has lost his life in these cases, simply by a little delay. Females, from motives of false modesty, have concealed the fact of their having a rupture till it was too late. True, in many cases, the patient by laying upon the back will be able to return the protruded bowel; but I repeat, *if there should be the least difficulty, lose no time in getting medical advice.*

But it sometimes happens that a physician can not be had, or if so, not so soon as would be desired. It is proper, therefore, that something be said of the modes of procedure necessary on such occasions.

Fig. 202.



POSITION IN RUPTURE.

In the first place, if possible, get the rupture back. The method of doing this by the *taxis*, as surgeons call it, is easier conceived of than explained. Suffice it to say, that gentle and even pressure is to be made upon the tumor—the patient lying down always—and this is to be continued

a considerable length of time. If this does not succeed, the legs and lower parts of the body should be elevated; in short, the patient should be hung up, or nearly so, by his heels. This plan is recommended latterly by French surgeons, and it is said to have succeeded in some desperate cases. The reason is plain. The mass of the bowels are made to draw downward, that is, when the patient is inverted, which must tend materially to bring the protruded part back into the abdomen.

Another means which has been universally recommended is, to apply ice to the abdomen, especially about the protrusion. The cold contracts the fibers in such a way as to make it possible often to reduce the hernia. But in the use of ice, care must be taken not to freeze the flesh, else it soon mortifies. A better plan is to use cold water generally. In this way we produce even a more powerful effect—by sympathy—upon the local part than when we use ice. The use of *hot* water ought never to be allowed. How plain it is that heat tends to rapid mortification—the thing of all others most to be dreaded in hernia. Not only are the allopathic, but the hydropathic works—some of them, at least—wrong on this subject. I repeat, cold is the better application; for it tends not only to the prevention of inflammation and mortification, but at the same time constricts the protruding mass in such a way as to give it the best possible chance of getting back into the abdomen; whereas heat does not produce any such constriction, but expands it, on a natural principle, and, what is worse, increases the inflammation. Bleeding, likewise, is a doubtful measure in these cases, and certainly not a tenth part as effectual as the cooling plan. “A delicate person,” says the learned Druitt, “will not be very likely to bear the shock of an operation, if bled or boiled to death’s door first of all.”

In a medical journal published a few years since in this city—Dr. Meikleheim’s—I find the following cases and remarks:

“In the *Journal de Chirurgie* (Journal of Surgery), a French periodical, June, 1845, there were published three cases by M. Moreau Boutard, in which irrigation with cold water enabled that surgeon to reduce the hernial tumors, after the taxis alone had totally failed. The first case was that of a woman four-and-twenty years of age, laboring under crural hernia, the result of an effort. The hernia had existed for ten hours, and all the symptoms of strangulation were present. The taxis not succeeding, a small stream of cold water was made to fall from a height of three feet on the tumor. The contact of the cold water produced a general chill; the muscles of the abdomen contracted, the nausea ceased, the respiration was momentarily suspended,

and in less than five minutes from the time the irrigation was commenced, the hernia had escaped from the hands of the operator, and returned into the abdomen.

"The second case was that of a man of thirty-five, of robust constitution, who had labored under inguinal hernia for some years. During defecation, the hernia, which was not restrained by a bandage, escaped, and became strangulated. Dr. Boutard was called eleven hours afterward. The intestine had descended into the scrotum, and formed a considerable tumor. The taxis was repeatedly tried; the patient was twice bled from the arm, and was placed in a warm bath, but all without success. He was then taken from the bath and placed naked on an inclined plane, without being rubbed dry. While shivering from the effect of the cold produced by the evaporation of the water with which he was covered, a stream of cold water was directed on the hernia, as before, the taxis being at the same time resorted to. In the course of five minutes the tumor became softer, its pedicle moved, and it escaped into the abdomen.

"The third patient was a young man of twenty-five, likewise laboring under strangulated femoral hernia, the result of an effort. The hernia had existed for eight hours only, but the symptoms of strangulation were beginning to manifest themselves. The taxis alone had been tried, and had failed. Irrigation with cold water, as before, was resorted to by Dr. Boutard along with the taxis, and after fifteen minutes the intestine returned suddenly into the cavity of the abdomen.

"M. Boutard also quoted a case narrated by J. L. Petit, of a robust young man, twenty-one years of age, who had been bled eight times in two days, and with whom all the other means of reduction had been employed without success. A pail of cold water having been thrown over him, the hernia suddenly returned."

These cases speak for themselves, and need no comment. Fortunate would it be for the world if we should after all find that simple cold water will cure strangulated hernia.

*Prevention.*—In regard to the prevention of this formidable difficulty, we see how necessary it is that the patient should do all in his power to promote a good state of the general health. He should commit *no errors* in either exercise, diet, or drink. It is exceedingly important that the bowels be kept habitually in a free and open state.

#### SPRAINS.

These are most common in the ankle and wrist. The tendons, ligaments, and soft parts about the joint become stretched, and in some cases torn. Hence the swelling and pain.

*Symptoms.*—Instant pain, usually severe; faintness at times; tumefaction and ecchymosis; increased heat, with redness, and subsequently weakness and stiffness, especially if the case be not properly managed.

*Treatment.*—The great thing at first, particularly if the case be a bad one, is perfect rest of the part. If this advice is not heeded, the sprain is liable to become a white swelling, for which there is little prospect of cure. Wet bandages should also be used, to moderate as much as possible the increased heat. In some cases warm fomentations give more relief than the cold. The most comfortable are the best.

Fig. 203.



WET COMPRESSES IN SPRAIN.

If a sprain occurs in a scrofulous person, it may be many months before it can be cured, even with the best possible management throughout. In such cases particularly, the diet can not be too plain.

### RUPTURE OF MUSCLES AND TENDONS.

In consequence of accidents and too violent muscular exertion, the muscles and tendons of the different parts of the body may become ruptured or torn. This accident happens more frequently to the large tendon back of the ankle—*tendo-Achillis* as it is called. “It occasionally happens,” says Mr. Liston, “to gentlemen of mature years, who, forgetting these, join in the sports of youth as they were wont to do. Suddenly they suppose that some one has inflicted a blow on the leg from behind. Their dancing is arrested, the foot can not be extended, and the nature of the case is forthwith evident to the most careless observer.”

*Treatment.*—Mr. South’s advice is as follows.

“The treatment consists in putting the person to bed and laying his leg on the outside, with his knee much bent and the toes much pointed, by which position the torn ends of the tendons are brought as nearly together as possible. This posture must be preserved for about a fortnight, to give time for the production of the new substance by which the tendon is to be repaired; and as it can scarcely be constantly kept up without, it is better to put a piece of thin board, about three fingers wide, and extending from below the knee-cap beyond the toes, upon the front of the leg taking care to have the board well padded with

three or four thicknesses of rag or thick flannel, so that it may not rub. It must be confined above by a few turns of a short roller around it and the upper part of the calf, and below, around it and the foot, so that the pointing of the toes is thus rendered continual. No bandage must be put on at the part where the tendon has been torn, and which is easily found, before the foot is extended, by the gap into which the finger drops in passing it from the heel up the leg toward the calf.

"After a fortnight, or it may be a little longer, has passed, on feeling for the gap, its place is found filled with a firm substance. The person may then get up and begin to move about a little; his shoe, or rather a laced half-boot—for the shoe he will not be able to keep on—being provided with a high cork heel, which should keep the toes nearly as much pointed as while he was in bed with the board on the front of the leg. After a week, a thin slice of the cork heel may be taken off, and subsequently it may be lowered more and more, till at last the heel can bear upon the ground as usual."

Fig. 204.



RUPTURED TENDO-ACHILLIS.

Another mode is to bend the leg upon the thigh, and tying it with the toes upward. But the above method is regarded as preferable.

The *cut tendo-Achillis* is a still more formidable accident, for the reason that, when the limb is placed in the same posture, which also is requisite to bring the cut ends of the tendons together, the

loose skin drops into the wound in such a way as to prevent healing. According to Mr. South—"The edges of the skin must be kept together by two or three stitches of silk, and instead of passing the thread through from the lower to the upper part of the divided skin, while its edges are simply brought together, it is best to nip up both edges of the skin so as to make their under surface touch, and then pass the needle and thread upward through both together, about two tenths of an inch from the edge, and then one fourth of an inch to pass it downward in like way—in fact, to make a "running stitch." Two or more such stitches, according to the size of the wound, must be put

Fig. 205.



CUT TENDON

in, and should be supported by long, narrow strips of sticking-plaster laid between them lengthwise on the leg. About the third or fourth day the stitches are taken out if the holes through which the needle has passed be wet with matter, or before this time, if they

be red and angry, and the threads seem to be cutting the skin, as they are then not merely useless from ceasing to give support, but also become actual sources of irritation. After they are removed, straps of plaster must be used, to keep the wound together."

### BRUISES, CONTUSIONS, ETC.

In all manner of bruises and contusions, such as arise from falls, beatings, being dragged upon the ground, etc., no remedy is at all comparable to water. If there is general fever attending the local injury or injuries, assuredly the water appliances afford us the best possible means for combating such fever; and as to local treatment, the same great remedy is not less strikingly beneficial.\*

### ASPHYXIA—SUSPENDED ANIMATION—APPARENT DEATH.

In case of accident a person should seldom be looked upon as past all hope, even though he is to all appearance dead. Injuries no doubt often prove fatal, merely for the want of proper care on the part of those who attend the case.

When a person appears thus to have been deprived of life, the first thing to be done is, to ascertain, if possible, how the injury came; and, secondly, the nature and extent of the evil. Whether the brain, heart, lungs, stomach, or any large blood-vessels have been injured are considerations of importance. The pulse should also be examined, the method of doing which is represented in fig. 206.

Fig. 206.



FEELING THE PULSE.

In *drowning*, it is difficult to ascertain precisely how long a man may be under water and yet survive. Usually when he has been submerged fifteen or twenty minutes, he is suffocated for want of air; the face appears swollen and purple, from the stoppage of blood in the venous system. All these phenomena occur in some cases, we have reason to believe, in a much shorter time than the period mentioned. In rare instances, recovery has been effected after a submersion of longer than twenty minutes.

In *drowning*, death does not ensue *from water rushing into the lungs*, as many suppose, but simply from *want of air*. As the water passes

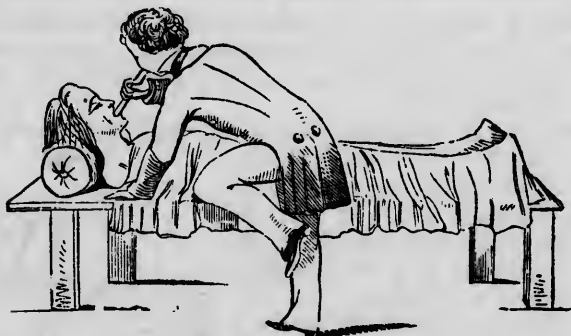
\* When Howard, the philanthropist, was in Turkey, a young man in one of the prisons was shown him who had been bastinadoed so severely that his body was swollen from head to foot in a most shocking manner. He desired the people to bathe him in cold water. This, together with some other simple means, and a cooling diet, effected his recovery contrary to the expectation of his keepers.

into the mouth, the epiglottis closes spasmodically over the windpipe, so that none whatever of the fluid is allowed to pass into the respiratory cavity.

From the facts just stated it is apparent how absurd it is to hang up a drowned person by the heels, as some have done. If no water can pass into the lungs, certainly there is none to pass out; and hanging a person by the heels only oppresses the brain, and makes the chances of resuscitation less.

If respiration has wholly ceased, it should be commenced at once artificially. This is best accomplished by pressing the tongue of the patient downward and forward, and passing a small curved tube into the windpipe, and attaching a pair of bellows to it; or if these conveniences can not be had, an assistant must have a simple straight tube

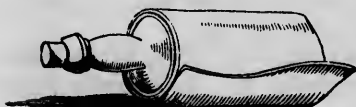
Fig. 207.



ARTIFICIAL RESPIRATION.

(see fig. 205), and while the nostrils are held tightly, blow into the lungs as powerfully as he can, to distend them, and then, by pressing upon the chest or belly, empty them, so as to imitate natural breathing as much as may be. If no tube is at hand, the operator's mouth must be placed tightly over the patient's, and these efforts should be perseveringly kept up for many hours.

Fig. 208.



BOTTLE OF WARM WATER.

Hot baths, hot bottles, bricks, etc., have been generally recommended for a patient under such circumstances. It is well in some cases to apply warmth, but heat, it should be remembered, is always a disturber of the vital action. Frictions with the hand wet in cold water are certainly



more restoring in their nature than any use of hot water can possibly be.

Galvanism, as a means of resuscitation, has succeeded in some cases when all other means have failed. It certainly deserves a trial.

The first signs of returning animation in such cases are slight, convulsive breathing, sighing, gasping, twitching of the limbs, and feeble action of the heart. The efforts at restoration should not now be slackened, but the more persevered in, and this for hours, if need be. There is always danger of the patient perishing from neglect in the after treatment. After respiration is fairly established, the patient should be made as comfortable as possible in a warm bed; but he should have at all times a full supply of fresh air. It is not well for some hours to give wine, soups, etc., as has often been done. The system in such cases is not for some time in any condition to digest food of any kind, nor is any needed; for it would only aggravate subsequent troubles.

After some hours the patient will suffer from headache, fever, and other disturbance, all of which symptoms are to be treated as there may be need. Instead of "bleeding, leeching, and purgations," so often recommended, we have in hydropathy a much better means.

The act of *hanging* may destroy life by dislocating the neck, "breaking the neck," as it is said; by compressing the jugular veins and inducing apoplexy; and by compressing the windpipe, so that no air can enter the lungs, the same as in drowning, which last is by far the most frequent mode of death by hanging.

In regard to remedying such cases, if we know the neck is disjoined, there is nothing to be done. But if there is the least doubt on this point, the same means of resuscitation should be used that have been described for drowning.

*Stroke by lightning* is a frequent cause of asphyxia. Electricity, magnetism, or galvanism are stimulants to the muscular and vital functions of the system; but when applied in a manner too powerful, as by a stroke of lightning, death is the immediate result. In this accident there is frequently no appearance of external injury whatever; in other cases the hair may be scorched, the skin blistered, and the flesh torn. The limbs do not stiffen as in other cases after death. The blood remains uncoagulated, and the system retains its warmth much longer than in ordinary cases of death. Putrescency very soon takes place.

If the breathing has ceased, and there is any hope of recovery, artificial respiration should at once be commenced. At the same time

the surface should be rubbed briskly with the hands wet in cold water ; in short, we should do as in any other case of suspended animation, where the object is to restore the powers of life. Speaking of the use of stimulants in these cases, the great Abernethy said, "but perhaps the best remedy is to dash cold water over the whole person of the sufferer, commencing with the head."

*Sun-stroke—coup de soleil*—is one of the most fatal of accidents. A common effect of exposing the head, when the weather is hot, to the direct rays of the sun, is a sudden inflammation of the brain or its membranes. The individual thus exposed is not unfrequently struck down suddenly, so that it becomes a matter of importance to know what is to be done on the spot.

The patient should be moved carefully to a place that is cool and yet not too cold ; the body should then be rubbed by means of the rubbing wet-sheet, wet towels, the hands wet in cold water, etc., with the view of drawing the superabundance of blood as quickly as possible from the brain. Cold water should also be poured freely upon the head, but not too suddenly at first. Cool clysters, and, if the patient is not too weak, cold, should be used freely. These processes should be continued faithfully until the patient is materially better or past all hope. If he recovers, the main thing in the after treatment is to look out well for general fever, and to combat it promptly as it may appear. The patient will need to be most scrupulously careful—in diet as any thing else—for many days, just as in other inflammation of the brain.

*Asphyxia by stifling* is a somewhat frequent accident. Carbonic acid gas is doubtless the more frequent cause. This gas is generated at times in wells, cisterns, dungeons, caves, by burning charcoal in a close room, and in various ways. Asphyxia may also be caused by the foul air of privies, sewers, sinks, cisterns, etc.

If a person is to descend into a well or other place in which danger is suspected, he should, as a precautionary measure, let down a lighted candle into it. If this burns very feebly, or is at once extinguished, there is danger present. Water should then be dashed freely into the well, or other place, by which means the air will be made to circulate, and thus become pure.

In case a person has become stifled, he should be removed as quickly as may be from the place. If he be in a well he should, if possible, be hooked out by means of some instrument that may be made to catch in his clothes, or water may be dashed into the well : after which some clear-headed, resolute person, should descend, first having a rope made well fast to his waist, with the view of drawing the unfortunate sufferer out of his danger.

**Treatment.**—The means of resuscitation, in such cases, are the same as for asphyxia generally. Fresh air in the greatest abundance, cold wet-hand frictions, artificial respiration—these are the resort in such cases.

#### CHOKING AT THE GULLET.

People are sometimes destroyed in a few minutes by getting a large piece of meat, apple, etc., in the gullet, which causes suffocation by pressure upon the epiglottis or the windpipe, or both, thus keeping the air from the lungs. In other cases, too, pieces of fish-bone, pins, and the like, get lodged in the gullet, which accident may cause some trouble, but in general is not a very dangerous one.

Fig. 209.



CHOKING.

The patient or an assistant should pass the thumb and finger down the throat as quickly as possible to extract the offending substance. If this can not be done, he should take large swallows of water, or chew a piece of bread, and swallow it down with the view of carrying down the offending obstacle. If necessary, a physician must be called, in order to pass a sort of probang down the throat, to force the substance into the stomach.

#### SWALLOWING PIECES OF MONEY, BUTTONS, SHELLS, NAILS, ETC.

Children sometimes swallow these and other like substances, upon which parents are generally unnecessarily frightened. The article swallowed usually finds its way out of the system easily enough, causing no trouble. It is safer, however, to avoid these occurrences as much as may be.

#### CHOKING AT THE WINDPIPE.

The trachea is admirably guarded at its top by the epiglottis, otherwise articles of food and drink would constantly be liable to pass into it, since it lies in front of the meat-pipe, or gullet. Occasionally, however, it happens that a person, while eating, in attempting to speak or laugh (in which act the air passes out of the lungs, thus forcing the epiglottis upward), "gets something the wrong way." This causes a spasmodic cough, accompanied with a feeling of being strangled,

both of which continue until the offending substance is expelled. In some cases, however, this fortunate result does not take place. A pea, a bean, a small shell, a fish bone, etc., may become fixed in the wind-pipe, in which case a violent inflammation will be set up that will in a few days destroy the patient, if the substance can not be removed.

Fig. 210.



WINDPIPE.

In fig. 210, *b* represents the epiglottis open, as in the act of breathing. The air is thus allowed to pass freely in and out of the glottis, *a*. In fig. 211, the epiglottis is closed, as in the act of swallowing. It falls upon the wind-pipe, shutting it closely, so that neither can the air pass in or out from the lungs, nor the solid or fluid food get in. It should be remembered, however, that the epiglottis is neither pushed down by the food as it passes to the gullet, nor pulled down in any other way. The gullet by sympathy darts upward as swallowing is about to take place, carrying the wind-pipe up with it, by which motion the latter becomes closed.

Fig. 211.



WINDPIPE.

*Treatment.*—It is possible for the violence of the cough in such cases to throw the article out of the trachea, even after it has been there some time. Holding the patient up by the heels might do good when he is coughing; but in general such cases will need a surgical operation. The windpipe must be opened, and even then we are by no means sure of success.

### SCALDS AND BURNS.

Three divisions only of scalds and burns are necessary, although as many as five or six have been made. In the first there is mere *redness*; in the second, *blistering*; in the third, *death*, or *destruction of the part*. In the second class of burns there is usually most pain. Burns upon the trunk of the body are in general more dangerous than those of like extent on the extremities. Always, the more extensive the burn, the more the danger.

*Treatment.*—A great deal has been written on this subject, and medical men have been confessedly not a little puzzled as to what the *proper* mode of treating a burn really is. There are three plans: the first, by cold applications; the second, by hot; and the third, by oily substances. Each method may be said to have its advantages and disadvantages.

If the clothes are on fire, it is evident that no time should be lost in putting out the flame. If water is not immediately at hand, take blankets, comforters, sheets, or tear up the carpet instantly, and envelop the patient, as represented in fig. 212. By doing this, we

keep the air from the flame as effectually as if water were used; and without air, fire can not for a moment burn.

Fig. 212.



EXTINGUISHING FIRE.

Now, supposing a case in which there is not sinking and collapse—are we to use cold or hot applications? This is a bone for hydropaths and homeopaths to pick. The latter say, Apply heat as much as can be borne, because “like cures like.” The former apply tepid, cool, or cold applications—all of them being the same in principle—*according to the feelings of comfort*.

It is not so easy to settle this question as might at first appear. We can never get two cases exactly alike in which to test the two kinds of treatment. No man has burned his two hands just alike, and then treated one according to the cooling, and the other according to the heating plan, to prove to us which succeeds best. I admit that heat does, in many cases at least, bring some relief; but in regard to cold, having had some experience, I will candidly state my belief. I believe that if a burned part is from the first immersed in cold water—and it need be no colder than just sufficient to keep down all pain—no blistering can take place. In other words, I do not see how it is possible for a blister to rise under cold water. Now, if this is true, it must be a great deal better to apply cold than heat, because it is always best to avoid blistering, if possible; for a great deal of trouble, and especially in regard to constitutional disturbance, may come from vesication. No matter if it should be necessary, in some cases, to keep up the cooling application for many hours, or even days, we only follow nature, I maintain, when we do it, and the safe and unerring rule is, *to suit the application to the feelings of relief*. If we keep on sufficiently long, water is sure in the end to “draw the fire out.”

“But,” says an objector, “cold water is liable to make the patient ‘shiver and shake.’” In some cases, do what we will, there will be

a *nervous tremor*, greater or less. The more soothing the application, the less of this there will be; and water, it is claimed, is, of all substances, that which best calms nervous excitement, of whatever kind. Besides, we need not use water so much or so cold as to create a chill. While we *cool* one part, too, we may *warm* another that is not burned, the feet, for example; or we may drink warm water to promote general warmth, while at the same time we cool the burned hand or other part.

Another objector, if he have thought so far, may say blistering is nature's own method of cure; that is, she throws out, at the inflamed part just under the cuticle, a portion of serum from the blood, to moisten, lubricate, and soothe the injured tissues. The answer is, inflammation, or, in other words, heat is the cause of that injury, irritation, or whatever we choose to call it. Now, if by the use of cold water we prevent all this accumulation of heat, there is, in fact, no need for nature to throw out a blister. The cold application does, in fact, aid her operations, so that the cure is effected in another much shorter and more genial way.

In case a part has been destroyed by the action of the fire, or blistering has taken place before it was possible to stop it, there can be no question, it seems to me, as to what will best aid nature in the reparative process. In another part of this volume I have explained at some length the great advantages of water as a local application in wounds. The same rules of practice, precisely, hold good here; and I repeat, if there is in the wide world any substance that can at all compare with water in promoting the healing of a wounded part, I have yet to learn it. In burns, as in all other injuries, water is the great panacea—just such a one as we would reasonably expect a benevolent, all-wise Creator would bestow.

In those cases of severe scalds and burns, in which so great injury is done the powers of life that reaction does not at once take place, we should proceed the same as in any other case of sinking. We should not certainly chill the patient when he has no fever or pain, but should, on the contrary, take the usual means of restoring warmth. After fever and pain begin, it is time enough to treat them; and as to the constitutional symptoms generally, whether they be those of sinking or excitement, we are to treat them precisely as we would in any other case of fever.

#### SCALDS BY SWALLOWING HOT LIQUIDS.

Many a child has lost its life by swallowing hot or boiling tea, coffee, or water, from the spout of a tea-pot or other vessel, upon a table; but

fortunately, in the larger number of cases, the child is too quickly alarmed by the pain caused by the hot fluid coming in contact with the mouth, to allow of its swallowing it. Still, in such cases, the tongue, mouth, and upper part of the throat, may become so scalded as to cause a great amount of pain and suffering, and to endanger or destroy life. In all such cases great danger is to be apprehended.

I am led here to remark, how foolish is it for people to allow themselves to become so enslaved to a habit that is always worse than useless; and which, at the same time, is the occasion of probably ninety-nine out of every hundred of the accidents of which I am speaking. It is the everlasting tea-pot or coffee-pot that the children get hold of in these cases. This fact alone ought to determine parents not to drink tea and coffee; or, at the very least, never to have the pot or any of its adjuncts upon the table, where the child can get it.

*Treatment.*—All such cases, I have intimated, are of fearful emergency. The best remedy, doubtless, is the one which can generally be obtained most easily, to wit, cold water. The sooner the child swallows it, and the more of it, the better. In all these cases nature points out the true method, and that is for the child to drink as much cold water as it pleases. And any one who has ever taken into his mouth, carelessly or otherwise, a sip of tea that burns him smartly, or a hot potato, can imagine how grateful it is to take cold water after the mouth is scalded.

As to the general treatment, we are to proceed according to the same great principles as in any other case of scalds or burns.

We must look well to the general fever, if reaction come on. If it does not, either the scald is a very trifling one, or so bad that nature can not rally, in which case death must be the result. In case of reaction, we manage the same as in any other case of feverishness.

#### FROST BITE, AND THE EFFECTS OF COLD.

When the body is subjected to an intense degree of cold, a certain form of apoplexy is induced, which not unfrequently ends in death. It is always preceded by an insurmountable desire to sleep, which the utmost exertion of the will is unable to overpower. This, if not resisted, must in most cases become the sleep of death. Those who have been affected in this way and have yet been restored, tell us the sleep is of the most delightful kind imaginable, and that nothing can ever be more desired in this world, than to allow the sleep to go on after it has once commenced.

Captain Cook, in the account he has given of his first voyage round the world, has strikingly exemplified the fact of which I am speaking,

in the case of Dr. Solander and Sir Joseph Banks. "Dr. Solander," says he, "who had more than once crossed the mountains which divide Sweden from Norway, well knew that extreme cold, especially when joined with fatigue, produces a torpor and sleepiness that are almost irresistible; he therefore conjured the company to keep moving, whatever pain it might cost them. 'Whoever sits down,' said he, 'will sleep, and whoever sleeps will wake no more.' Dr. Solander was the first who found the inclination against which he had warned others irresistible, and insisted on being suffered to lie down. He soon fell into a profound sleep, from which, however, by the exertion of Sir Joseph, he was awakened. Several others of the party very narrowly escaped, and two of them slept and perished from the cold."

The philosophy of the action of cold upon the system is readily explained. "Cold, so long as the living power is capable of producing a reaction, is one of the most strenuous tonics we are possessed of, and the glow that accompanies the reaction is felt to be peculiarly vigorous and elastic. But if it exceed this proportion, and no reaction ensue, the contraction of the vessels on the surface is converted into a rigid spasm, the blood is driven into the interior, and the surface must necessarily be pale. In this extremity of temperature, moreover, cold, instead of being a tonic, is one of the most formidable sedatives in animal chemistry: it carries off the heat of the body more rapidly than it can be recruited, and as effectually exhausts it of all its irritable and sensible power. But such exhaustion is a cause of stupor or sleep, and a cause so cogent that the will is in many cases incapable of resisting it, and falls a prey to its power."

*Treatment.*—This must be general or local, or both, according to the nature of the case. In general, when the effects of cold are at all severe upon the system, the extremities are more or less frozen. In all cases great caution is necessary in regard to the application of warmth, and particularly when the limbs are rigid and under the influence of frost. Baron Larrey, in his account of the sufferings of the French army in the Russian campaign, refers to the numerous examples of soldiers who were under the influence of exposure to intense cold, falling down completely dead on their entering warm rooms, or approaching too near the fire of the bivouacs. Dr. Good recommends that in such cases we first plunge the body for a few minutes into a bath of cold sea water or salted water, at the same time that warm air may be breathed into the lungs. Fresh water, however, is on the whole better, particularly in its subsequent effects. In Siberia, and other cold countries, it is the practice generally to wet the frosted parts well with snow. The great object is to make the affected parts thaw



as gradually as possible, and the more so, the less violence upon the tissues.

After the thawing process is completed, and, I repeat, the slower this is made the better, there must come on necessarily more or less of inflammation. The sensation will to a considerable degree resemble that of a burn; and the treatment should now be the same in principle as for that kind of injury. We are, in short, to use wet applications locally, at the temperature which is the most conducive to comfort. If the injury is at all extensive, it will also be advisable to extend the wet compresses to some distance from the place affected, as, for instance, if it is a frozen toe or foot, to bandage the leg as well.

On a remarkably cold day, Christmas, 1849, I rode in company with two other gentlemen from Jefferson County, through Lewis County, to Rome, Oneida County, of this State, and after arriving in the evening at the railroad hotel, one of our party stepping out of the door discovered a poor old man apparently intoxicated and frozen. We were waiting for the cars from the West, the train being already twenty-four hours behind its time, in consequence of the great fall of snow. I therefore had time to attend upon the old man. He was helped into the hotel, he being yet able to walk, but his fingers and thumbs being bare, were all frozen as hard as bones.

*Treatment.*—For hours his hands were kept for the most part in water, with plenty of snow floating in it. This was done in a cold room. Occasionally the old man would break away from all restraint, and go to a fire in another room, but soon the pain in his hands would become so great, he would willingly go back to the cold room and put his hands again into the ice water. The object of the treatment was to prevent the frozen parts thawing too rapidly, and not to thaw them the sooner, as many suppose. The more gradual the thawing the less pain in all such cases, and the less the subsequent trouble. If we place a frozen apple in very cold water it thaws gradually, and is left in a much more perfect and natural state than if we thaw it in warm water. The same is also true of a living part. In the course of three or four hours, in the above case, the patient was made sufficiently comfortable to allow of tolerable sleep. Wet bandages were kept upon the hands during the whole night. Early in the morning the patient had risen, appeared very well, and had gone to look for his horse, which he had left somewhere the night before. I have learned no further particulars of his case, but considering the extent of the injury upon the parts, it is probable that he experienced some difficulty for months. He should be thankful indeed, if he did not lose his

hands by mortification. No other treatment, probably, than that practiced, could prevent such a result.\*

#### CHILBLAIN.

There are two varieties of chilblain: the *simple*, in which the skin remains unbroken, and the *kibe*, or *ulcerated chilblain*, accompanied with ulceration.

This affection is caused by the effects of cold, and a too sudden exposure of the affected part to heat. It happens oftenest among children or young persons, and the old. Delicate and infirm persons are more subject to it than those who are strong.

The feet and hands are more liable to be affected by chilblains than other parts of the body, but in many cold climates the nose, ears, lips, and face may become frozen, and as a consequence suffer from this affection.

*Causes.*—Although cold is the *primary* cause of this affection, *heat* is the exciting one. Caloric is indeed the great poison of frost bites and chilblains in every stage and condition. The late Professor McClellan, of Philadelphia, tells us in his work on surgery, that since the general introduction of warm air from cellar furnaces into the public and private buildings of that city, chilblains have almost entirely disappeared. The tips of the ears, nose, eyelids, lips, and chin were always inflamed by a too sudden exposure to the full blaze of a chimney, and the toes and fingers were constantly frost-bitten or irritated, by a close approach of these parts to a hot stove or grate.

*Treatment.*—In order to understand what this should be, the nature of the affection should be considered. Chilblain is neither more nor less than a weakened condition of the minute capillaries of the part. They have not the proper degree of tonic or contraction, so that too great an amount of blood is allowed to remain in them. Hence the remedial application must be such as is calculated to supply the ner-

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\* The aborigines of our country, we are informed, never suffer injury from the effects of cold. They are, in the first place, hardy and vigorous, being accustomed to much exposure in the open air. Bathing, also, frequently in cold water, as the custom is among them, tends powerfully to harden the system against the effects of a low degree of temperature. In the second place, the *moccasins* they wear upon their feet are admirably calculated to allow of a full and free circulation of blood in these parts, and are, moreover, good non-conductors of heat. In those cases where the motion of their feet in their moccasins is not sufficient to keep the parts warm, they break the ice, and restore them by exposing them for a short time to the stimulus of cold water. This kind of treatment, it should be understood, will answer for the strong and vigorous, in whom the reactive energy is at a high ebb, as in the case of the Indians, but would hardly answer for others, because where a part is cold, and the reactive force of the system is not great, putting cold foot into cold water makes it only the colder.

vous energy necessary to enable the small vessels to take on their healthful action. For this purpose we know cold to be the best application that can be made. Heat acts in a contrary way, and only causes the difficulty to become worse. Extremes, however, of both kinds should be avoided; we should not allow the affected part either to become too cold or too hot; but there is more, however, to be apprehended from the latter than the former. Indeed, as before remarked, heat is the great poison of chilblains.

At night the part affected is apt to become painful and itching. In such case the application of the cooling bandage is a most salutary remedy. It may be worn all night with benefit, and in such case the part is better able to endure the cold on the following day. The cold foot-bath in the morning, when the affection is on this part, as also the general cold-bath, is of great service in the cure.

During the day, when the patient is exposed to much cold, the part affected should be guarded as well as may be from it. This is particularly necessary, if it is the foot that is affected. Wearing the skin of the fat that is over the sheep's kidney, is said to have an excellent effect in keeping the part comfortable.

As to the general treatment, it should be such as is best calculated to benefit the whole system. Always the better the general health, the more favorable the cure of a local part. Two persons may at the same time get a chilblain; in one the cure is soon effected by force of nature alone, while in the other it may require years. All this happens in consequence of the difference in the amount of constitutional stamina of the two individuals. In case the chilblain becomes ulcerated, it is to be treated on the same general principles as of ulcers arising from other causes; and for this, the water-dressing is the best possible local application that can be made.

#### SWALLOWING POISONS.

Children have often swallowed poisons by finding bottles, vials, etc., in a closet or some by-place, and it also sometimes happens that instead of medicine, some poison substance, such as oil of vitriol, arsenic, corrosive sublimate, and the like, has been administered.

In all such cases it is very important for parents to know what to do, from the fact that some considerable time must generally elapse before a medical man can be obtained. A little knowledge, therefore, put into immediate practice on such occasions, may make all the difference between life and death. And those who have had experience in such dreadful emergencies can form some idea how much relief it will afford a parent, under such circumstances, to know what to do.

One of the first and most prominent effects of swallowing poison is a great burning and heat in the stomach. And there can not be a shadow of doubt in such cases, I think, that nature points out the best remedy.

We know that domestic animals, such as the cat and dog, when they become poisoned by arsenic set for rats, take at once to drinking water; they drink and vomit again and again, and are thus sometimes saved. It is generally understood, that if water is left within the reach of rats they are very apt to save themselves by it, after having taken poison that had been set for them.

With the view of removing the poison in such cases as quickly as possible from the stomach, it has been customary to give an active emetic, such as the sulphates of copper or zinc, which are among the most speedy and efficacious articles of the kind. If persons wish to depend upon such articles, they should get them put up in proper doses by an apothecary or physician who understands them, and have carefully bottled up and ready for any emergency. Every family that means to depend upon medicines at all, should have a well-stored medicine chest, as carefully and as choicely kept as any thing they can have about them. I am not saying that I recommend such a course myself; but *if drugs are to be the dependence*, why, have them on hand, especially for the emergencies which we are considering.

*Arsenic.*—If this poison has been taken, ten grains of the sulphate of zinc may be administered, with plenty of milk or water, or both. These should be freely administered both before and after the vomiting. Instead of milk, flour and water has been given as a substitute. Fluid enough should be given to prevent the severe retching that is caused by the stomach having nothing to act upon.

*Corrosive Sublimate.*—The white of eggs beaten up in water, is recommended as an antidote to this poison. When the eggs can not be immediately obtained, milk, or flour and water, may be given as a substitute.

*Oil of Vitriol and Aqua Fortis.*—In case either of these poisons has been swallowed, it is recommended to give an alkali, such as chalk, or magnesia mixed in water, as soon as possible. Lime-water and soap and water may also be used; and if none other is at hand, the wall may be scraped or broken. While the medicine is being prepared, an emetic may be administered. Water and other diluents should be used freely.

*Opium.*—This, in some of its forms, is perhaps more frequently taken than any other poison. The great aim in such cases is to remove the poison as soon as possible from the stomach. There appears to be no

pretended antidote to this poison; hence emetics have been the great resort. It is recommended that the patient be kept up and in motion, rather than listen to his entreaties to be left alone. He should be made to walk up and down the room, or, what would be better, in the open air, and it would doubtless be better, and more humane, to whip him and drag him along, rather than to allow him remain stupid.

I have thus spoken of the so-called antidotes for the most common poisons; but my own belief is, that water is a better remedy than any or all of the articles of the materia medica combined. Immediately after the reception of a poison a great desire for water is experienced. This at least is true of most of them, and whether this desire for water is or is not felt, it is yet the most speedy and effective emetic, provided the patient will swallow enough of it, that can be taken. Besides, when other emetics are relied on, water or some like diluent must be administered very freely to do the work of cleansing. Indeed, an emetic without water would be almost wholly useless.

In all cases, then, of poisoning by swallowing, let it be laid down as an important principle, that the stomach should be cleansed as soon as possible of its contents. The water may be used either tepid or cold. We can not do this too quickly or too thoroughly, and if it should turn out that no poison has been swallowed, the remedy can yet do no harm. I repeat, then, that this safety of the water treatment is a great argument in its favor, and one that should always be kept in view.

Another method in such cases is, *quickly to evacuate the bowels*. In many cases of poisoning, do what we will, some portion of the article will find its way through the stomach into the intestines. Now, if in connection with vomiting we at once give large and repeated clysters of tepid or cold water—the former being somewhat the most effectual—we evacuate directly the lower bowel and invite strongly the peristaltic motion of the whole alimentary canal. We do well in this process likewise on the score of dilution and cooling the mass of the circulation both of which are important objects.

*Keeping down the general feverishness of the body* is also another important indication in the treatment for poisoning. For this purpose hardly any of the water processes could go amiss; the wet-sheet pack, the shallow-bath, the plunge, the shower—almost any of these would be applicable.

If stupor should occur, frictions over a wet sheet, rubbing the surface smartly with the hands wet in cold water, and the shallow-bath, would be the most appropriate measures. A number of persons aiding in this way could soon rouse a patient, in many instances where, if left to nature or milder means, death might be the result.

## WOUNDS BY POISONOUS ANIMALS.

The bite of the rattlesnake is supposed by many to be necessarily fatal. It is said, however, on good authority, that such is not the fact, but that on the contrary death seldom results from it. When a wound of this kind does prove fatal, death may occur either in a few hours, or not before days have elapsed.

The symptoms in a bad case following an accident of this kind, are these: "When the poison of the rattlesnake has actually been introduced into the general mass of blood, it begins to exert its most alarming and characteristic effects. A considerable degree of nausea is a very early symptom. We now discover an evident alteration in the pulse; it becomes full, strong, and greatly agitated. The whole body begins to swell, the eyes become so entirely suffused, that it is difficult to discover the smallest portion of the general covering of the eyeball and eyelids that is not painted with blood. In many instances there is an hemorrhage of blood from the eyes, and likewise from the nose and ears; and so great is the change induced in the mass of blood, that large quantities of it are sometimes thrown out on the surface of the body in the form of sweat; the teeth vacillate in their sockets, while the pain and groans of the unhappy sufferer too plainly inform us that the extinction of life is at hand. In this stage of its action, and

Fig. 213.



Fig. 214.



TREATING POISONED WOUNDS.

even before it has induced the most alarming symptoms which I have mentioned, the powers of medicine can do little to check the rapid and violent progress of this poison."

*Treatment.*—One old method of treating a case of this kind is, immediately on receiving the bite, to cut out the portion of flesh bitten. If this can be done quickly enough, it is probably the best thing that can be resorted to. By this means we keep the poison from spreading into the system. Another method is to suck the part thoroughly, or to have some friend do this favor as soon as possible after the bite. It is said that if this is done faithfully, the poison is extracted, and does no harm to the one who sucks it, because it does not enter the circulation. A large quill or other tube may be used in sucking

the circulation. A large quill or other tube may be used in sucking

the wound. (See fig. 213.) Another method recommended in such cases, is to ligate the limb a little above the bite, until suction or other means of removing the poison can be resorted to. (See fig. 214.)

*Burning out a poisonous bite* has been resorted to by some. If it could be done sufficiently soon, it would probably prove effectual. This may be done with a common fork, one prong of which has been broken off, and the other heated red-hot in a fire. The burning should be done thoroughly, if at all. (See fig. 215.)

In all these cases, as well as in others of poisoning, it is an object of great importance to arrest both local and general fever from the very start.

This, as is now beginning to be well understood, can be best accomplished by means of water treatment.\*

Fig. 215.



BURNING POISONED WOUND.

\*A communication was a few months since sent to Messrs. Fowlers and Wells of this city, for publication in the "Water-Cure Journal," which bears upon its own face the stamp of truth. I have no doubt of the truth of the facts it sets forth. I would remark, however, that cutting the flesh in such cases can do no possible good. The communication is as follows:

"JACOB PRICE'S SAW-MILL, 17 miles N. W. of Stroudsburg, Monroe Co., Pa.

"Jacob Price, a hunter and lumberman, says when he was about eight or nine years of age, some thirty-eight or thirty-nine years ago, in the month of May, he and some other boys were rolling stones down a hill, and he was bitten by a rattlesnake of the yellow kind, which they afterward killed. The bite was in the left arm, through a flannel shirt and linsey roundabout, lined with linsey. It made a scratch like a brier scratch. In two or three hours it swelled up so he could not close his fingers. It happened half a mile from home. He was carried to his father's house, and they applied herbs and various remedies; among others they used a poultice of snake-root, and he drank new milk, and they applied salt and indigo. This was done for two or three days, when the arm became black up to the shoulder, and his body swollen down over his heart, and the black streaks were extending down over his body; and during the last day those remedies were used, he knew nothing, and they gave him up to die.

"His father concluded to try how it would operate to cut the wound open and apply cold water. He cut the wound open three fourths of an inch in depth, and one cut above also, and poured cold water on it from a coffee-pot. In about two hours consciousness returned, and in three or four days he was running about again, entirely recovered.

"Isaac Gruber, at Paradise (a few miles above), was bitten about twenty-two years ago in the leg, just above the ankle. They bound his thigh very tight, and doctored him with all the remedies they knew for four or five days. The limb swelled up "as large as a barrel," and burst open in forty or fifty places in a kind of blister, from which the yellow water was running. He fainted about every half hour. At length, hearing of J. Price's father, they sent for him. He arrived about noon. He cut the limb open in more than fifty places, half

The bites of other poisonous reptiles, the adder for example, should be treated on the same principles as that of the rattlesnake. That the same good success will be found to attend the treatment, I have not the least doubt.

Fig. 216.



AN ADDER.

The same, also, is to be said of the stings of wasps, hornets, etc. (See fig. 217.) All of them are to be treated on the principle of an active inflammation.

#### WOUNDS OF THE VEINS.

These are, in general, not dangerous, except it be a large and deep-seated trunk, or a large varicose vein on the leg that is injured. In

an inch deep, and poured on cold spring water, and before night the fainting ceased, and the man was soon entirely restored. The same man was bitten once afterward, and cured in the same way by J. Price's father.

"The little son of Wm. Bodhead, who keeps the hotel at the Delaware Water Gap, was bitten by a pilot-snake, and was very ill; and they had the doctors, and applied their usual remedies for two or three days, but without success. They then sent for his father, who, on account of the boy being quite young, and the case a bad one, feared to make the incisions at first, but at length did so, and the boy is now well. Thinks this was seven or eight years ago.

"Jacob Price further says, and I give his own words, as I have done very nearly in the preceding statements:

"George Seers was bitten in the big toe about seven years ago, and I was there, happening to be passing with my team. The swelling was passing up his leg, and was about half way to his knee when I arrived, being an inch thicker at the swollen part, and advancing up the leg in the form of a ring.

"I cut the toe open and applied water, pouring it on from a height out of a coffee-pot. The swelling stopped its progress up the leg at once, and the next day the man was well, and at work."

"The above are the *worst* cases I can remember. I have known many others which were not so bad, and all cured by the application of cold water. Among the lumberers and others in this and the neighboring counties, it is the common remedy, and being entirely successful with it, they use no other, at least in our neighborhood. If a dog or a cow is bit, and they can get the animal to a stream, they are made to stand in it, and are certain to be cured. I heard, when in Monroe County, in 1849, of a cow being found with her neck swollen, as the narrator said, so as to be 'nearly as large as her body.' She was made to stand in a stream, and recovered.

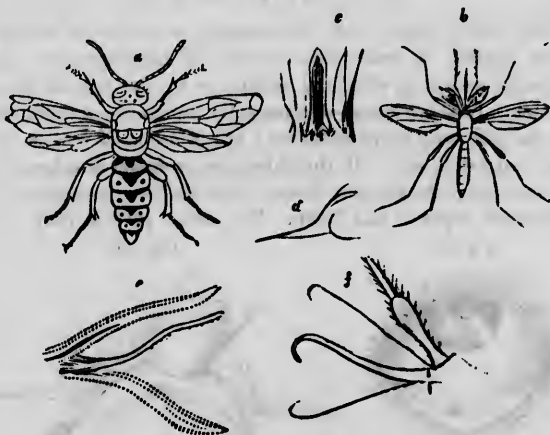
"I give the above, hoping that if published it may be of use to some one.

"SAMUEL E. GRISCOM."



such cases a wound of a vein is in reality more to be dreaded than that of an artery. The hemorrhage, however, may in most cases be

Fig. 217.



POISONOUS INSECTS. !

a. Hornet. b. Gnat. c. Lancets of horsefly. d. Sting of wasp. e. Lancet of Flea. f. Lancets of bug.

arrested by placing the part in a raised position, or by keeping up unremitted pressure on the bleeding point with the finger. Turner observes: "In the case of his Excellency, William, Prince of Orange, who in his hurt by the Spanish boy, as my Lord Bacon relates, when the internal jugular was opened, could find no way to stop the flux of blood till the orifice of the wound was hard compressed by men's thumbs, succeeding for their ease the one after the other, for the space of forty-eight hours, when it was hereby stanch'd."

It is considered necessary in some cases to apply a ligature to the vein; but all surgeons are agreed that this should, if possible, be avoided, because of the danger of phlebitis or inflammation of the vein, which, when acute, is always a most dangerous disease.

### WOUNDS OF THE EYE.

These may be of all possible degrees. The eye is wholly destroyed in some cases, in others only slightly injured. A common effect of a blow about the eye is a disreputable-looking *ecchymosis*. Water-dressing, according to the heat, is the best remedy. Wounds of the eye proper are to be treated according to the nature of the case. *Burst eye* should be managed in the most careful manner. A skillful sur-

geon can sometimes save the eye in such cases. No one else should meddle with the part.

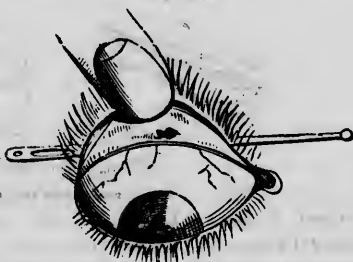
#### SUBSTANCES IN THE EYE.

A very trifling affair, such, for example, as a piece of cinder from a railroad engine, is sometimes capable of causing much suffering. Always the sooner an offending substance in the eye can be removed the better. In some cases—the majority probably—a thorough washing of the part will prove sufficient; but in others it will be necessary to use manual means. If the substance is under the lower lid (fig. 218), this should be brought down, till it can be removed with a piece of moistened paper or fine linen. The same process may be adopted

Fig. 218.



Fig. 219.



#### SUBSTANCES IN THE EYE.

with the upper lid, but a preferable method is to place a bodkin or some such article across it, till it can be completely inverted. (See fig. 219.) After the offending material is got rid of, the eye should be washed in tepid water, and the process should be repeated as often as the pain demands.

#### INJURIES OF THE FOOT.

Fig. 220.



NATURAL FOOT.

ral state (fig 220), and then also the fashionable shoe that is made to

I refer here to those which arise from voluntary abuse simply. We abuse the teeth, the stomach, the bowels, the lungs, the skin, the head, and the nerves, but hardly any part more than the foot. For example, look at the cut representing this part in a natu-

fit it—fig. 221. See also fig. 222, which gives another view of the natural foot, and fig. 223, of one which has been cramped. I have also, in another place, spoken of the effects of tight boots and shoes in causing corns and bunions, to which the reader is referred. But the worst part of the story is yet to be told.

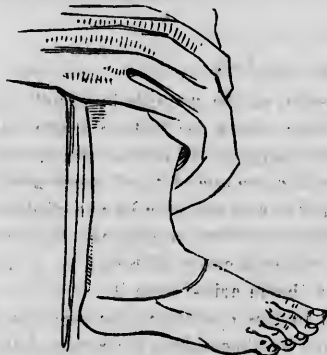
Fig. 221.



FASHIONABLE SHOE.

Fig. 222.

Fig. 223.



NATURAL FOOT.



CRAMPED FOOT.

What is termed "inverted toe-nail," but more properly "toe-nail ulcer," is a most painful and troublesome affection of the great toe; so much so, that when it is considered necessary to extract the nail, as surgeons have often done, an amount of pain is caused which, while it lasts, is not exceeded by any other operation. All this happens in consequence of wearing the shoe too tight, the same as in corns, bunions, etc.

Fig. 224.



TOE-NAIL ULCER.

With regard to the treatment of toe-nail ulcer, as a general thing, there is not much difficulty if the water-dressing and water-soakings are sufficiently persevered in, and the part kept from fresh irritation. True, in some cases, the patient's system may be so foul, and the part so much affected, that the cure will be attended with a good deal of difficulty. In some cases the patient has preferred to have the toe cut off, rather than suffer as he had done.

An ingenious method of curing this trouble, when not too severe or far advanced, is that of Dr. C. D. Meigs, of Philadelphia. His method is to scrape the nail or soften it in warm water, so as to render it moderately flexible, and then introduce under its angle on the sore side, some soft lint, so as to fill entirely the space beneath its edge. Next apply a very small compress upon the granulations, or tumefied or projecting integuments, in order to force them off the edge of the nail and confine it there by a few turns of a little strip of adhesive plaster. The continued pressure of the compress, the action of the lint, and the use of a loose shoe, will, according to Dr. Meigs, suffice for mild cases.

The water-dressing, used from time to time, and often, would also be a help to this method.

#### PERFORATING THE EAR.

An instructive essay might be written on the methods by which human beings mutilate and deform their bodies for fashion's sake. A very common operation in "domestic surgery" is that of perforating the lobe of the ear; and since it has become one of the "necessaries" of civic life, a few remarks concerning it will not here be out of place. It should be remembered that this little operation, trifling as it appears, has sometimes resulted in serious inconveniences, although it is admitted that in most cases no material harm arises from it.

Various instruments may be used in this operation; we may use a small punch, similar to that employed by shoemakers for cutting holes in which to put the strings of shoes; or the surgeon's instrument called the torcar and canula, used for opening dropsical parts, may be resorted

Fig. 225.



PERFORATING THE EAR

to; or a good-sized "darning" needle may be made to answer the purpose. Whatever instrument is used, a piece of soft wood or cork should be placed at one side of the part to be perforated, while from the opposite side it is forced rapidly through the flesh, in such a way as to make a free opening, as may be seen in fig. 225.

To prevent the wound from healing and closing

the perforation, it is necessary to introduce a waxed thread, or a leaden or catgut ligature through it, and which should be moved from day to day, in order to insure a greater degree of cleanliness of the part. In some cases the healing is very tardy, a discharge taking place for a long time, constituting a kind of "seton;" usually, however, in something less than two weeks it becomes so far healed that the ring may be introduced.

If the perforation is made at too low a point in the ear, it is liable to be torn out, producing an unsightly deformity, which, however, may in a good degree be remedied by an operation similar to that which is performed for hare-lip.

#### OF THINGS IN THE NOSTRILS AND EARS.

Whenever a foreign substance gets lodged in either of these cavities, it should be removed as soon as may be, because its presence is liable to cause irritation and harm.

From the nose a patient may often blow out the offending material, as in the act of blowing the nose. In some cases, also, a small scoop, forceps, or a bent probe may be used with advantage. The same also in regard to the ear.

#### WEBBED FINGERS.

This deformity, which consists in the union of the fingers with each other, may be congenital, or it may arise from the effects of burns. It can, of course, be cured only by a surgical operation, and this even may fail. Mere dividing the skin can scarcely ever succeed, because of the great tendency there is in the parts to grow together again. In some instances a piece of fresh skin dissected from the palm of the hand has been engrafted on the cut surface after the division, and with success. Mr. Liston recommended that first of all a perforation be made in the connecting skin near the roots of the fingers, and be made to heal on the same principle as in perforation of the ear. Afterward the remainder of the connection is to be divided.

#### SPONTANEOUS COMBUSTION—CATACAUISIS EBRIOSA.

That the living body becomes at times, in consequence of long-continued intemperance in the use of alcoholic drinks, liable to combustion, easily excited or spontaneous, is abundantly proved. The condition, however, is a rare one. Some doubt the facts; but, as a French writer has affirmed, "it is not more surprising to meet with such incineration, than a discharge of saccharine urine, or an appearance of the bones softened to a state of jelly."

This condition of the system will appear the more remarkable, when it is remembered that in all other states, whether of health or disease, the body is with difficulty consumed by fire, even at a high temperature. In the ancient mode of sepulture and the burning of martyrs a large pile of fagots were always found necessary to accomplish a complete destruction of the body by burning.

In what is termed spontaneous combustion, the heat is not in all cases self-originated, but is communicated to the body by a candle, ordinary fire, or a stroke of lightning. It is to be observed likewise, that the fire or flame thus excited in the body, has, so far as known, in no case been so powerful as essentially to injure the most combustible materials in direct contact with it. The flame has been a comparatively feeble one, and the heat of a moderate intensity only.

This phenomena seems to have taken place for the most part in the night-time, and when the sufferer has been alone. It has usually been discovered either by the fetid, penetrating scent of sooty films, which, as we are told, have spread to a considerable distance, or by the blue flame that hovers over the body, or the unnatural heat, which, however, as before remarked, is not very great. The patient likewise has in all cases been found either dead, or so far consumed that life appeared to be extinct; and in no instance has recovery been known to take place after the appearance of this most singular of all pathological states.

#### COLD HANDS AND FEET.

Many persons, either from general debility, local disease, or deranged and enfeebled circulation, suffer habitually or often from coldness of the extremities. The difficulty is not only an unpleasant one, but a derangement of the system which is not entirely safe.

*Treatment.*—In many of these cases, all that is required is for the patient to lead a more active life. The poor seamstress who is obliged to toil from early morning till late at night, in order to earn enough “to keep body and soul together,” should yet spend some of her time daily in pedestrian or other active bodily exercise, as in doing so she will be able actually to do more at her sedentary employment than she otherwise would. The rich and opulent, too, if they would but regard bodily comfort, must be physically active a considerable portion of each day, for in no other way is it possible for health to last more than a very short time.

In addition to exercise in these cases, various means are useful. The cold foot-bath should be taken three or four times a day, preceded by exercise, if possible, to warm the extremities before the bath, and also

exercise after the bath, for the same object. The hands should likewise be subjected to the same process. It is of still more importance to use the rubbing wet-sheet, if possible, three or four times during the day. This is emphatically *the* bath for deranged circulation. If the head is hot, as is often the case, that should be attended to, *i. e.*, by means of the head-bath.

In cases of fevers and other diseases in which the patient is obliged to remain in the recumbent posture most or all of the time, the feet are certain to suffer more or less from cold. This happens partly from debility, and partly from the position of the body not favoring the descent of the blood. In such cases rubbing the lower limbs is a useful measure. It is also right and proper that *warm* applications, not *hot*, as we so often read in books, be made. True, the remedy should not be abused. The less it is used the better, as a general thing; but at night, particularly, when the patient is liable to be kept awake by cold feet, the parts should be warmed.

## CHAPTER XXIII.

### DISEASES OF WOMEN.

#### MISMENSTRUATION.

PUBERTY, or the marriageable condition of woman, may be considered as occurring in temperate climates at the age of from fourteen to fifteen years; but high living and the excitement of city life are apt to bring it on somewhat earlier—a circumstance which is always an unfavorable one.

The *menstrual discharge* which occurs at this period is known by the terms “menses” (meaning a month), “monthlies,” “monthly discharge,” “show,” “being regular,” “regular discharge,” “flowers,” “turns,” “monthly turns,” “regular periods,” “monthly periods,” “courses,” “monthly courses,” “catamenia,” “catamenial discharge,” etc. We read also in the Bible that Rachel said to her father, “Let it not displease my lord that I can not rise up before thee, *for the custom of women is upon me* ;” and of Sarah, that a son was promised to her when “she was old, and well stricken in age, and when it had ceased to be with her after the manner of women.”

*Amenorrhœa*—obstructed or suppressed menses—is a frequent occurrence in the present state of society at about the age of puberty. It may also occur at any time before the turn of life. When this state of things exists, the patient is apt to be pale and feeble, although perhaps not thin in flesh, and that condition which authors call *chlorosis* or *green sickness* is likewise apt to be present; there is “heaviness, listlessness of motion, on the least exercise palpitations of the heart, pains in the loins, back, and hips; flatulency and acidity in the stomach and bowels, a preternatural appetite for chalk, lime, and various other absorbents, together with many dyspeptic symptoms.” If the condition is allowed to run on, it is very apt to pass into tubercular consumption or some kindred disease.

*Menorrhagia*—raging menstruation—signifies an immoderate flow of the menstrual discharge. It is a common ailment, and indicates always a deteriorated state of the general health. “Women who live indolently and indulge in stimulating articles; who use little or no exercise; who keep late hours; who dance inordinately; who are



intemperate ; who have borne many children ; who have been subject to febrile affections ; who have much leucorrhea ; who are too prodigal of the joys of wedlock ; who are advancing toward the non-menstrual period ; who yield too readily to passions or emotions of the mind, are those," says a distinguished author, "most subject to menorrhagia ; to which may also be added, those women whose physical labors are too great, as well as those who have too little labor, are also subject to this disease."

*Dysmenorrhea*, signifies painful, difficult, or laborious menstruation, and is also a very common affection at the present day. Many a woman has spent almost her whole menstrual life with as much pain occurring at each menstrual period as though labor itself had been passed through. What untold sufferings, alas ! are women brought to endure in this disease. Can we for a moment suppose that it is in accordance with the designs of a benevolent Creator that woman should thus suffer ? I answer unhesitatingly, it can not be. Neither can reason, analogy, or the facts of experience be brought to prove the contrary of my position.

But sad as it is to think of females suffering in this way, the condition is yet to be looked upon as a more favorable one than menorrhagia. The pain seems to indicate that nature has greater power to grapple with diseased action ; and we find by experience that it is more readily cured.

The *treatment* of all forms of mismenstruation is to be conducted on general principles. It is now well understood that there are no drug specifics for any of these conditions of the system. Time was when it was customary to use *forcing* medicines, as they were called, in menstrual retention, but the thing has fortunately now quite gone out of date. All such drugging can but harm the system in the end, and consequently should be forever discarded.

There is, indeed, more excuse for using opiates in dysmenorrhea, for the sufferings are indeed often very great. But we have, thanks to Priessnitz, a still more effectual method in Water-Cure, and one which leaves no sting behind.

The great thing, then, in all these cases is to restore the general health. Bathing, diet, air, exercise—all of these come in for a share of the aid. I repeat, RESTORE THE GENERAL HEALTH.

To quell pain we use the wet-shee' pack, folded wet-sheet, shallow-baths, sitting-baths, clysters, etc., according to the case. One can hardly do too much so long as the pain is not subdued.

It should be remembered that it is quite as necessary to bathe during the menstrual period as at other times. Indeed, in many respects it is more so.

## THE CRITICAL PERIOD.

The *change of life*, *turn of life*, or *critical period*, is that at which the menses cease, occurring usually at about the forty-fifth year of age. It is a natural occurrence to every woman—as natural for menstruation to cease as to begin. Were the habits of society such as they should be, health, and health only, would be the natural result in all these changes; but such is not always the case. Some are barren and unhealthy, and have not vital stamina enough for them ever to gain truly firm and enduring health. Others; too, and probably a far greater number, have their health destroyed, either by the ignorance of their parents or themselves, or of both combined. In such cases some of the following symptoms may be noticed. If any organic disease is already present, with many it appears to be aggravated or increased. This is especially true in diseases of the womb and the breasts. It seems, indeed, that cancer of these organs is more apt to become developed about this time. Symptoms of dyspepsia are apt to be aggravated. Some become more corpulent, and as corpulency is a state of disease, more or less general debility, and inaptitude for walking and physical exertion of whatever kind, is experienced. There appears also, at this time, to be with many a greater tendency to inflammatory disease, diarrhea, dysentery, cholera morbus, or, on the other hand, a constipated state of the bowels; or the constipation may alternate, with one or more of the former complaints.

With regard to the management of the change of life I remark, the best local and general treatment that can be adopted is that which is calculated to fortify and invigorate the general health. Every thing in diet, exercise, bathing, the daily occupation, and the moral and mental habits of the individual, should be, as far as possible, regulated according to physiological principles and the laws of health.

Those methods of dosing and drugging the system which have by many been practiced on such occasions, are, as a general fact, pernicious, doing a great deal of harm. Those especially who take powerful, and so-called expulsive medicines, with the view of forcing nature to continue the menstrual discharge, render themselves liable to serious injury. It is easy, thus, by, as it were, a single misstep, to seal the inevitable doom of life-long ill health.

## LEUCORRHEA, FLUOR ALBUS, OR THE WHITES.

This disease is of very common occurrence with the female sex, since but few pass to years of womanhood without being more or less affected with it. It consists in a puriform discharge from the vagina,

varying in color in different cases, being sometimes yellow, but more frequently white, from which circumstance comes the more popular name of the ailment.

When leucorrhea is of an obstinate and violent character, and is allowed to go on a long time, it leads to great general as well as local debility. In pregnancy it has been followed by miscarriage, and, as has been supposed, has been the true cause of this misfortune. It has likewise been followed by barrenness and falling of the womb. In its effects upon the general system it has been supposed to cause cutaneous eruptions of various kinds, hectic fever, dropsy, and cancer of the womb, etc. Whatever may be true respecting these conjectures, it is plain that the sooner the disease is cured the better, provided it be done in a right and natural way.

The *causes* of leucorrhea are as numerous as those which go to deteriorate the general health. Want of cleanliness brings it on no doubt in many cases, and aggravates it materially in others. With a good constitution, good habits, and the strictest regard to this virtue, one can hardly conceive it possible for a woman to be troubled with the whites. Nor would it be possible to cure one having a bad case of the complaint without securing this very important end. It happens oftenest among the more feeble and weakly of a crowded city, those who bear children too rapidly, live too idly, and particularly among those who indulge in indiscriminate sexual commerce.

This discharge, when of a very bad and acrid character, may be communicated from the wife to the husband. The disease in such a case resembles very closely gonorrhea in the male, so closely, in fact, that no physician can detect the difference. Perhaps the two are in truth the same, that is, in these aggravated cases. Gonorrhea, of course, had a beginning somewhere; and why not in this way as well as any other? And why may it not often thus be re-created?

*Treatment.*—Some have had very strange notions respecting the cure of leucorrhea. Thus, for instance, an Italian physician, supposing that it arose from cold, caused his patients to wear woollen drawers constantly. But whether he cured them in this way does not appear.

Is it right to cure this discharge suddenly? In some cases it can not be arrested by any of the methods in the old-school practice. In others it can be checked in a short time. The question is whether this is a safe practice. I am decidedly of the opinion that it is better to cure the discharge by force of nature. We should have the affected parts kept constantly as clean as possible. The most copious injections of pure water may be used. After this, let it be cured by virtue of constitutional vigor; that is, let the whole system be so

much improved and invigorated that these weakened parts are compelled to join in the healthful and harmonious action of the whole vital and organic domain.

#### FALLING OF THE WOMB—PROLAPSUS UTERI.

This may be said to be one of the fashionable diseases of the day; that is, a great many persons suppose they have it when no such trouble actually exists.

*Symptoms.*—These are, a sense of weight, ponderosity, or pressure in the vagina, and at the same time a feeling as if the perineum were sustaining an unusual weight. There is, also, at times, a pressure and feeling about the rectum as if something should be allowed to pass the bowels, when at the same time there is not the ability to do—a feeling which amounts to a certain degree of tenesmus, such as is experienced in dysentery, and which is a false sensation, since in such case it does not at all indicate that the bowels have need of a movement. There is, likewise, a dragging sensation at the hips and loins, with more or less of pain and numbness running down the thighs; a desire to make water frequently, and sometimes without the ability to do so, or, if it do pass, it is with difficulty, the secretion being excessively hot; a pain in the back, which is sometimes so very severe that the patient can not walk or stand without the greatest difficulty, so that when she attempts to put her locomotive organs into exercise, she appears as if she has great weakness of the lower extremities. In some cases the patient is obliged to throw her body forward as she walks, and is obliged, perhaps, to support herself by placing her hands upon her thighs. There is generally, if not always, more or less discharge from the vagina of a purulent character, sometimes tinged with blood, and offensive, according to the severity of the case. There is generally pain in cohabitation; and added to all these manifestations, there is often a set of nervous and hysterical symptoms which it would be difficult to enumerate. It need hardly be added that the numerous train of evils attending prolapsus will be found to vary to a great extent in different cases, for, indeed, no two will be found exactly alike; and, as a general rule, the greater the degree of prolapsion, the more will be the suffering attending it.

*Treatment.*—It is remarkable to observe how much can be accomplished, in the course of a few months often, where real prolapsus exists, by pursuing a correct hygienic course. Thus, a lady residing in a city, having this complaint so badly that she can scarcely walk, by going to the country, and living as it were in the air and sunlight of heaven, going now among the shady groves, now in the garden, and

now upon the hills, all along carefully avoiding excess of exercise—I say, by these simple means, a patient suffering severely from a chronic prolapsion of the womb, has quite recovered in the course of a single summer.

A great variety of “supporters,” etc., are in vogue at the present day, palmed off upon the female public as “infallible cures” for prolapsus. These for the most part are not only useless, but absolutely injurious, and many a one has been made a life-long sufferer by resorting to them. Now, it should be forever understood that CONSTITUTIONAL RESTORATION is the only safe, the only reliable means in these cases.

This disease is often a complicated one. It can not be expected that the non-medical reader will be competent to the task of treating it in the majority of cases. But every one can understand, if they will think sufficiently, the ordinary means of restoring the health generally. The rubbing wet-sheet, wet-sheet pack, wet-girdle, wet compresses, sitting-bath, and vaginal injections are all valuable in prolapsus. Exercise is an invaluable means, but patients should be very careful not to do too much at a time.

#### INFLAMMATION OF THE WOMB—HYSTERITIS.

Inflammation of the uterus is not a common affection. It is called *simple* when it occurs in the unimpregnated state, and *puerperal* when happening soon after delivery. The latter form of the disease is by far the most common.

*Symptoms, etc.*—In general the disease is characterized by “fever, heat, tension, tumor, pain in the region of the womb, pain in the os uteri when touched, and vomiting.” When happening after delivery, there is, usually within two or three days, a painful sensation at the bottom of the belly, which gradually increases without intermission. The womb becomes much increased in size, hardened, and painful on pressure. There are also rigors, pains in the head, back, and groins, thirst, nausea, and vomiting. The secretion of milk becomes greatly diminished, the lochia suppressed, the urine high-colored and scanty.

*Treatment.*—This must be active according to the severity of the case. The great thing is to subdue the general fever the same as we would do in puerperal peritonitis. The disease is a dangerous one if it is not subdued promptly from the very first.

## CHAPTER XXIV.

### OF PREGNANCY AND CHILDBIRTH.

IN no department of the art of healing are the effects of water more truly wonderful than in pregnancy and childbirth. By observing the physiological laws, and pursuing a course of bathing adapted to the season and the case, the most satisfactory results are obtained.

*Signs of Pregnancy.*—These are: some degree of nausea and irritableness of the stomach; cessation of the menses; a brown circle about the nipple; oozing of a milky fluid; enlargement of the abdomen after some weeks; motion of the child. But all of these signs may prove fallacies at times, *i. e.*, a woman having them, or supposing that she has them, may be deceived.

*Duration.*—The normal duration of pregnancy is two hundred days, or forty weeks. But it is subject to some variation, even in healthful cases. Many suppose the first pregnancy to be shorter than the succeeding one; but such is not the fact.

*Mode of Reckoning.*—1. Cessation of the menses. Conception, it is believed, more commonly takes place within a few days after the appearance of the menstrual discharge. A good mode, therefore, is to reckon from this period. 2. *Quickening*, also, affords some guide, inasmuch as it usually takes place at about the middle of the period. It is, however, subject to considerable variation. 3. Nausea in some cases, and certain peculiar sensations that occur in the uterus at about the time of conception, afford something of a guide.

*Management in Pregnancy.*—Every woman of a pure, virtuous, and intelligent mind will agree with me that the management of the health during this period is a matter of grave importance. Should cohabitation be abstained from? What the diet; the dress; the bathing; the exercise; the habits generally? These are important questions for the prospective mother to dwell upon.

This state of the system, although a natural one, is, in the present condition of society, subject to various disorders, the more prominent of which will now be briefly noticed.

*Abortion*, or *miscarriage*, is a common occurrence. Strange to say, not a few among womankind hail the event with pleasure. A woman desiring the death of the living child within her! It is a fearful

thought. Abortion is caused by sexual abuses; tight dresses; over feeding; too stimulating diet; dancing and other too violent exercises; scrofula and other taints of the system in either parent; and any thing which deteriorates the general health. Abortion is not usually at all dangerous at the time; but it makes sad work with the constitution in most cases, especially if it is allowed to recur at different times.

Abortion is almost wholly unknown among the American Indians. They nurse their children for two years, and often longer; and during this whole period they utterly refuse cohabitation with the opposite sex. The manual labor in which they are constantly occupied, and their hardy habits generally, tend powerfully to invigorate their bodies; and although they are, during pregnancy, exempted from the more laborious parts of their duty, they are always habitually active.

*Nausea and vomiting*, which also occur mostly in the morning, are subject in a considerable degree to the will, but still more to the voluntary habits. Spare diet; invigorating exercise; constant employment; the wet-girdle, and daily bathing are the curative means.

*Fainting*, which may be caused by the movements of the child, even when they are yet weak, is remedied by the rubbing wet-sheet, the wet-girdle, and other tonic means. Occasional fainting need excite no alarm.

*Uterine hemorrhage* is not common during the period except in cases of abortion. It is to be managed on the principles of hemorrhages generally, which are explained under the appropriate head.

The peculiar *febrile condition* which some women experience when with child is easily combated by bathing and proper diet. *Acute disease* goes much harder with the pregnant ordinarily; but those who live hydropathically have little to fear on this score.

The *sleeplessness, headache, hysteria, depression of spirits*, and the *nervous symptoms generally*, are for the most part readily subdued by a course of tonic treatment, as by wet-sheet packs, the rubbing wet-sheet, etc.

*Voraciousness; longings; loss of appetite; heartburn; salivation; constipation; diarrhea; hemorrhoids; hematemesis; cramp of the stomach; toothache; jaundice*, and all other sympoms of disordered digestion, are readily managed, in most cases, by correct diet, a mild tonic course of water treatment, and, if necessary, the hunger-cure. The same also may be said of *stye in the eye; plethora; pain in the right side; puritus pudendi*, or *itchings*, of whatever kind; *difficult breathing* and *pain in the breasts; difficult urination; swelling of the limbs*, and *varicose veins*. I have never known *convulsions* happen in one who lived hydropathically during the pregnant state.

*Vaccination.*—Addressing himself to his class, the eloquent Dr. Meigs thus speaks on this subject :

“Pregnant women ought not to be vaccinated. This is a rule which I would advise you to depart from only on the most urgent occasions. If a woman have ever been vaccinated, and appeal to you to re-vaccinate her, because there is a prevalent variolous epidemic, I hope you will refuse to accede to her request. Small-pox is exceedingly and peculiarly pernicious to pregnant women. She who has it, and miscarries, or who is brought to bed at term, generally dies. It is, in my opinion, inexcusable to expose her to so great a risk—a risk far greater than that from accidental contagion, or that of the epidemy. But the vaccine is identical with the variolous animal poison, saving some lessened intensity of its malignant form, derived from its having been modified by the nature of another mammal. To inoculate a cow with small-pox virus, is to give her the vaccine disease, with the lymph of which you can vaccinate, but not reproduce unmodified small-pox. Keep your pregnant patients clear of small-pox, in all its forms, whether modified or unmodified. Do not vaccinate them. I have been the witness of dreadful distress from the operation. Eschew it, I entreat you.”

*Drug Treatment.*—Blisters, emetics, purgatives, opiates, and bleeding—all these should be most sedulously avoided by the pregnant. The latter has indeed gone well-nigh out of fashion—for bleeding in pregnancy *was* a fashion—and the others are, through the teachings of hydropathy, destined soon to do so.

With regard to *barrenness* I have a few words to say. It may be caused by imperforate vagina; by cancer; ulceration of the womb; fault of the seminal secretion, etc., but ordinarily it is from mere debility. The woman is weak and run down, and hence the generative function can not go on. Corpulency, high living, indolence, and sexual abuses are often at the root of the matter. Bathing, in connection with other good habits, will often cure sterility, a fact which I have seen exemplified in numbers of instances. The vegetarian diet is a valuable help. “Abstinence from cohabitation for many months,” says Dr. Good, “has proved a more frequent remedy than any other, and especially when the intercourse has been so incessantly repeated as to break down the staminal strength; and hence the separation produced by a voyage to India has often proved successful.”

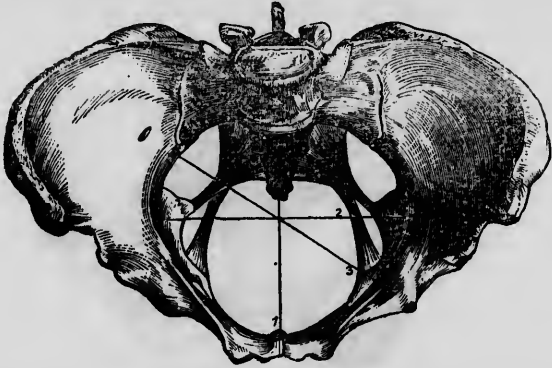
#### CHILDBIRTH.

Before proceeding to speak of labor, I shall present the reader with several cuts, illustrative of the anatomy of the parts concerned in the



process. Fig 226 is intended to represent the three principal diameters of the pelvis.

Fig. 226.



DIAMETERS OF THE PELVIS.

1. Antero-posterior diameter, from the prominence of the sacrum to the inner and upper edge of the symphysis pubis. 2. Transverse diameter, across the widest part of the brim, at right angles to the antero-posterior. 3. Oblique diameter, from the sacro-iliac junction of one side to the opposite side of the brim, just above the acetabulum. The average measurements of these diameters are: antero-posterior, four inches; transverse, five inches; and oblique, four and three fourths. Half an inch either way may be allowed for variations. The circumference varies from thirteen to fifteen inches.

*Deformed Pelvis.*—Mechanical injuries, rickets, softening of the bones, etc., may cause deformity of this part, so much so that labor

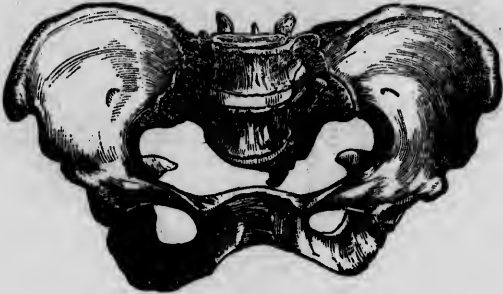
Fig. 227.



OBLIQUE DISTORTION.

may be greatly impeded, and in some instances the birth wholly precluded. Fortunately, however, these distortions are rare. Those who know they have a seriously deformed pelvis, should never lay themselves liable to pregnancy. Figs. 227 and 228 represent distortions of this kind.

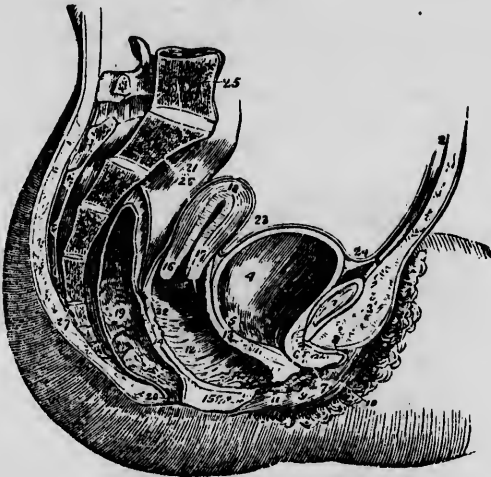
Fig. 228.



ANTERO-POSTERIOR DISTORTION.

The relative position of the viscera of the female pelvis is shown in fig. 229.

Fig. 229.



VISCERA OF THE FEMALE PELVIS.

1. The symphysis pubis, to the upper part of which the tendon of the rectus muscle is attached. 2. The abdominal parietes. 3. The collection of fat, forming the projection of the mons Veneris. 4. The urinary bladder. 5. The entrance of the left ureter. 6. The canal of the urethra, converted into a mere fissure by the contraction of its walls. 7. The

meatus urinarius. 8. The clitoris, with its præputium, divided through the middle. 9. The left nymphæ. 10. The left labium majus. 11. The meatus of the vagina, narrowed by the contraction of its sphincter. 12. The canal of the vagina, upon which the transverse rugæ are apparent. 13. The thick wall of separation between the base of the bladder and the vagina. 14. The wall of separation between the vagina and rectum. 15. The perineum. 16. The os uteri. 17. Its cervix. 18. The fundus uteri. The cavitæ. uteri is seen along the center of the organ. 19. The rectum, showing the disposition of its mucous membrane. 20. The anus. 21. The upper part of the rectum, invested by the peritoneum. 22. The recto-uterine fold of the peritoneum. 23. The utero-vesical fold. 24. The reflexion of the peritoneum, from the apex of the bladder upon the urachus, to the internal surface of the abdominal parietes. 25. The last lumbar vertebra. 26. The sacrum. 27. The coccyx.

*Safety of Labor.*—"So few women die in labor, or in consequence of direct injury done to the economy in labor," says Professor Meigs, "that it might almost be said to be not at all dangerous to go through that process." The child-bed mortality is a post-parturient mortality, consisting mainly in the results of inflammatory action attacking the reproductive tissues, and the parts directly connected with them. A woman will now and then be found to perish from inflammation of the lungs, from a cerebritis, from an attack of diarrhea, from a bilious or typhus fever, or some chronic ailment of the intestinal tube, forced into destructive activity by the parturient circumstances; and yet it is almost true to say, that when a woman dies within some eight or ten days after delivery, she has perished with puerperal fever, since so few of them are known to perish from other causes.

*Pain* is a natural condition in childbirth. It is not true, as some assert, that the process can be rendered a painless one. Even the most healthy animals suffer when they bring forth young. In the present state of society, some of the most healthy persons experience the most difficult labors, while some of the most sickly—the consumptive for example—have the most easy births. But it is of the greatest importance to preserve as good a state of health as possible during pregnancy, for upon this depends in great part the *safety* of labor and the *ability* to recover from it.

The *amount of pain* that is usually suffered in giving birth to a child has generally been overrated. It has been estimated that in an average labor a woman has about fifty pains, which occupy about fifteen minutes, and that the average time of labor after it has fairly set in is about four hours. Hence there is, during an average labor, about three and three quarter hours of rest, while there is but one fourth of an hour of real pain. But if it were not for these intervals of rest, no woman probably could live through the agony of childbirth. In the arrangement of labor, then, do we not see a striking exemplification of the benevolence of the Creator?

*Premonitions of Labor.*—In general there is a manifest improvement in all the symptoms and feelings several days before labor commences. The patient can breathe easier, walk better, and is in all respects more comfortable. There is a considerable subsidence of the abdomen, caused by the fetus entering into the brim of the pelvis. Just before labor, however, a kind of general distress arises in the patient's mind, owing in part, doubtless, to the state of the body, and in part to the natural apprehension of the pain and danger she is to pass through. "This," as Dr. Denman well observes, "does not seem to be confined to the human species, but to be common to all creatures, as they universally show signs of dejection and misery at this time, though they suffer in silence; and even those animals which are domesticated, strive to conceal themselves, and refuse all offers of assistance."

*Symptoms and Stages.*—In "Midwifery and the Diseases of Women," I have made the following remarks:

"Labor may be appropriately divided into three stages, which are the following: 1. That which includes 'all the circumstances which occur, and all the changes made, from the commencement of the labor to the complete dilatation of the os uteri (mouth of the uterus), the rupture of the membranes, and the discharge of the waters.' 2. This stage includes those circumstances which occur between the first stage and the expulsion of the child. 3. The third stage includes all that relates to the separation and expulsion of the placenta, or after-birth.

"As labor is about to come on, and even for some days previously to it, an increased mucous discharge takes place from the vagina, which, for a day or two at the last, is apt to become streaked with blood, forming what is termed the *show*. This arises from a partial detachment of the placenta, at which time it might perhaps with propriety be considered that labor had actually commenced, although in a slight degree.

"This show, however, does not always appear, for, as Dr. Denman observes, 'in many cases there is no colored discharge in any period of the labor, and then the dilatation proceeds more slowly; for the discharge is not only a sign that the parts are in a state disposed to dilate, but it also improves that state.

"If the bladder is at all irritable, the woman at this time suffers from strangury more or less. This is in consequence of the pressure of the womb upon the neck of the bladder, or upon the urethra. If the rectum is in a similar condition, there is apt to be tenesmus, or a bearing-down feeling at the lower bowel, as if something should be discharged, but which the woman is not able to accomplish. All these

are common symptoms; but in some cases labor begins, as it were, suddenly, without any warning whatever."

"Not unfrequently, in the beginning of a labor, the woman experiences one or several rigors, which may be in connection with or without a sense of cold. These are supposed to arise in consequence of the system rallying its energies to concentrate them upon one important object, namely, that of effecting the dilatation of the uterus and the expulsion of the fetus. They are evidently not attended with any danger, and should therefore give the patient no alarm."

*Nature of the Pains.*—In the same work I have used the following language on this subject, which I can not do better than quote:

"The true pains of labor usually begin in the back and loins, and shoot round to the upper part of the thighs; or they may commence first in the lower part of the abdomen, as if in the region of the bladder, passing backward toward the spine. Some women commence being sick as if they had eaten something that disagreed with them; and I have repeatedly known them to attribute the pains of the commencement of labor to this cause. A little time, in such cases, is sufficient to convince them of their error.

"Periodicity is, in most cases, a symptom showing that the pains are not false. The interval between them may vary in different cases from one minute to thirty, forty, or more, according to the action of the uterus, on which they depend. The more the pains are multiplied, the better it is to be regarded for the patient, and for the reason that if an effort of great importance to the constitution is to be produced, the more slowly and gradually it is done the better, if the slowness is not the effect of disease. A sudden and violent labor is never to be looked upon as being so safe as one which happens in a more gradual manner. 'It is an old observation,' says Dr. Denman, 'confirmed by daily experience, that after the completion of slow or lingering labors, patients usually recover better than after those which are quick; not to mention that they are less liable to the untoward accidents which precipitation may immediately produce.'

"A considerable difference exists in the character of the pains, according to the stage of labor in which they occur. The earlier pains are termed cutting or grinding, from the fact that uterine fibers alone are principally concerned in them. Afterward the pains get to be lower down, and are of a more bearing-down nature. When these pains exist, the woman is instinctively led to bring her abdominal muscles into powerful action, causing her at the same time to hold in her breath, so that after the pain has ceased, or partially so, she utters a deep groan. In the earlier part of the labor the cries are more shrill,

so that an experienced observer will often be able to judge of the stage of the labor merely by hearing the manifestations made. In some cases, however, the patient does not exhibit any of the afore-mentioned signs of distress, until the moment when the child is about to pass into the world. She is then obliged to put forth an expression of agony, which proves but too well how much it is her lot to endure."

*The "Waters."*—By the *liquor amnii*, or *waters*, is meant that fluid which is contained within the membranes that surround the child. The quantity varies a good deal in different cases, from four or five pints to scarcely as many ounces. Its office is to furnish a safe and easy lodgment for the child while in the womb, and in the form of the "bag of waters," to serve as a soft and yielding wedge in dilating the soft parts at the time of labor. The rupture of the membranes containing the waters takes place usually but a short time before the expulsion of the child, although it may happen, and without any ill effects apparently, many hours, days, and even weeks, before the delivery.

*First and Second Labors.*—It is natural to expect that a woman must suffer greater pain, and have a more tedious labor with her first child than with the subsequent ones. "I have heard a voice as of a woman in travail, and the anguish as of her that bringeth forth her first child," saith the prophet Jeremiah. The difference in the length of the first and subsequent labors, however, is not usually in proportion to the number of children that have been borne. If a woman be twenty-four or thirty-six hours in labor with her first child, she may be only six or eight with her second, and in the subsequent labors only three or four hours. There will, of course, be many deviations from any calculation of this kind that can be made, but the practitioner will, however, often be able to form a tolerably accurate opinion of the probable duration of a labor, if the woman have had a number of children previously. But even here there will be a good deal of liability to error, since the fifth, sixth, or tenth labor may prove a very tedious and difficult one, because of some mal-position of the child. Age likewise influences the duration of a first labor. If the patient is considerably advanced in years at the time of her first pregnancy, delivery must, for obvious reasons, be more difficult, other things being equal, than one that occurs earlier in life. But first labor, although occurring late in life, appears to be as safe as any other.

*The After-birth.*—The *placenta*, or *after-birth*, in the human subject, "is a flat, circular body, about six inches in diameter, and about one inch and a half in thickness at the center, becoming thinner toward the circumference. Usually in the center, but sometimes at or near the edge, we find the insertion of the *funis* or umbilical cord, the ves-

sels of which immediately ramify in a divergent manner upon the surface of the organ." It is attached to the upper and inner surface of the womb, and furnishes blood to the fetus through the umbilical cord.

Ordinarily, after the uterine contractions have forced the child into the world, the womb reposes itself a half hour, less or more. Thereafter periodical pains again commence, which shows that the organ is attempting to expel the after-birth; it is sometimes thrown completely into the world, but oftener it is left wholly or in part in the vagina. It is proper, then, as indeed at other times, under certain circumstances, to deliver it by manual means.

But there should be no hurry in the matter, as we too often see the old women appearing to think that every thing depends upon a speedy expulsion of the viscus. In some cases the after-birth has remained in the womb for many days, in spite of all that doctors and nurses could do, the patient recovering in the end without harm.



Fig. 230.

THE PLACENTA AND UMBILICAL CORD.

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*Flooding during or after Delivery.*—Serious hemorrhage seldom occurs before the birth; but among weakly women, and those who take poor care of themselves, it is of somewhat frequent occurrence after the delivery has taken place. The flooding may be either internal or external; the former, which is a rare occurrence, when the blood gushes forth, but remains within the cavity of the uterus, causing the abdomen to swell and the patient to faint; the latter, when it passes out from the vagina, causing syncope, if the bleeding be profuse. Now, to manage flooding in dangerous cases, requires all the resources of skill and art. The great thing, however, in most instances, is to chill the abdomen, thighs, etc., with cold wet towels, etc., in the most speedy manner. While the blood gushes, there is no danger of doing harm with cold. Those who have the care, non-medically, of parturient women, should study these matters, for often a child is born before it is possible for a physician to be obtained. See also remarks on hemorrhages generally, in another part of this volume.

*Females recover most readily from Hemorrhage.*—It is a remarkable fact, and one well worth remembering in practice, that females, in

consequence of possessing the menstrual function, and being exposed to the accidents of childbirth, are more subject to hemorrhage than males are. In striking accordance with this fact, it appears to have been a benevolent intention of the Creator to form the female system in such a manner that it more readily recovers from profuse loss of blood than that of the opposite sex. Under the effects of severe hemorrhage the system of a man remains pale and enfeebled for months, perhaps, while that of a woman regains its strength and complexion in a much shorter time. Often, before I was aware of these facts, I have been alarmed at the amount of blood lost at the birth of a child, and when, to my great surprise, the patient has been up, and in a few days apparently as well as ever.

*Management after Delivery.*—Addressing woman on this subject in the work on “Midwifery,” before referred to, I have used the following language :

“I have before remarked that the birth of the secundines (membranes, umbilical cord, and after-birth) is the most dangerous part of labor, although not the most painful. I have now to remark that the *real* danger in midwifery does not commence until after the whole birth is completed. Childbed fever, inflammation and abscess of the breasts—these are the sad mishaps which we have to fear in these circumstances, and for which I feel an anxious solicitude in your behalf.

“You may think me strange when I inform you that I have had more trouble in the practice of midwifery from the one circumstance of the woman having too much mental excitement within a few days after delivery than from all other things combined. I am sure I am not mistaken when I assert that I have known more accidents and mishaps to occur from this one cause of seeing company too soon after the birth than from all other causes put together. So important do I consider it for you to keep, as it were, quiet in this respect, I should think my labor in writing these letters a hundred-fold rewarded if I could be successful in warning you of the danger of over-excitement at the time when you are getting up from confinement. As the most important advice, then, which I can give in regard to all the subjects connected with midwifery—DO NOT ALLOW YOURSELF TO SEE COMPANY FOR MANY DAYS AFTER THE BIRTH.”

Velpeau, than whom there is no higher old-school authority, observes: “Most of the diseases which affect a woman in childbed may be attributed to the thousands of visits of friends, neighbors, or acquaintances, or the ceremony with which she is too often oppressed. She wishes to keep up the conversation; her mind becomes excited, the fruit of which is headache and agitation; the slightest indiscreet word worries



her ; the slightest emotions of joy agitate her in the extreme ; the least opposition instantly makes her uneasy, and I can affirm that among the numerous cases of peritonitis met with at the *Hospital de Perfectionnement*, there are very few whose origin is unconnected with some moral commotion."

*Bathing*.—It is not a new practice for a woman to be bathed in cold water soon after delivery. It was practiced among the Romans, and always has been among many of the savage nations. Among civilized communities, however, the practice has for many centuries been unknown. But experience proves that there is no condition in which the purifying and invigorating effect of water is more needed or more salutary than in the parturient state. Of course skill and good judgment are necessary in the administration, and yet a few simple rules suffice. Thus, if the patient is very feeble, and not well able to sit up, the ablution may be performed by assistants while she is in the recumbent posture. If every thing is well done, a good degree of cleanliness may be insured in this way ; and the process should be repeated at least three or four times in the twenty-four hours. But in most instances, the patient, after resting a little, is able, with some aid from assistants, to have an ablution in a wash or sitting-bath tub ; and the usual custom with the writer has been to advise this to be done four times in the twenty-four hours—before breakfast, before dinner, before supper, and quite late on going to rest. The water is moderated to from seventy to eighty degrees. Each and every ablution is found to produce the most salutary results ; cleanliness is promoted, pains removed and prevented, the strength improved, the sleep rendered more sound and refreshing, and the general comfort and well-being of the patient in all respects enhanced.

*Exercise and Sitting up*.—Both the people and physicians in this country generally are too much afraid of women getting up soon after childbirth. By being compelled to lie in bed too long a time the system becomes weakened, so that the various accidents of this state are the more likely to happen. Velpeau, of Paris, who, as before remarked, is as high authority on this subject as the world affords, speaking of labor, says : "After this first sleep, that is to say, after the lapse of two or three hours, the patient should set up in bed and take a little broth. *This position seems to rest her, and allows the lochia which had accumulated in the vagina to flow readily off.*" Whatever rests the patient, whether it be lying down or sitting up, should be practiced, because in this way is the strength best promoted. Hence the practice of compelling the women to lie for days without any relief of position, which has been so common in this country, is a very erroneous one,

and tends directly to cause the very mischiefs which it has been affirmed an opposite course may induce.

*The Binder, Compresses, etc.*—If a dry bandage is needed as a support, the wet one is much to be preferred to it. As a general thing, however, we put no bandage upon the woman soon after the birth. We wish to change and rewet the application frequently, and for this reason the simple compresses are the most convenient. But when the patient is to sit up or walk about, the wet girdle, if properly arranged with tapes to secure it, and made pretty tight at the lower part of the abdomen, affords a good deal of support. The wet bandage does not slip upward and get out of place near so readily as the dry one.

Concerning the effects of bandages, I have remarked in "Midwifery," etc., as follows: "It will naturally occur to you whether the going without the old-fashioned belly-bandage will not be likely to prove injurious to the woman's form. The sum and substance of the whole matter is just this: whatever tends to weaken the constitution in general, and the abdominal muscles in particular, must have a tendency to produce laxity of the fibers, thus rendering the part more pendulous. On the other hand, whatever tends to strengthen the system, and to give tone to its fibers, must have a contrary effect. Now, the dry belly-band, even when it is so arranged as to keep its place—which it generally is not—is too apt to become heating, and, of course, a source of debility under such circumstances. For this reason it is plain that a cold wet girdle is altogether better than a dry one. Nor should this even be left on too long a time without changing and rewetting it. This should be done, as a general thing, every three or four hours at farthest, and in warm weather oftener."

*After Pains.*—These are caused by the contracting of the uterus in expelling clots of blood that collect within its cavity after delivery. With the first child and with really healthy persons these pains are seldom experienced. In many instances they are worse than labor itself. The most powerful opiates are often ineffectual in relieving them. Cold wet towels often changed upon the abdomen, thighs, genitals, etc., the folded wet sheet if necessary, the tepid vaginal injection if there is not too much soreness, tepid clysters, and, in extreme cases, wet-hand frictions in the shallow-bath are the invaluable means which hydropathy holds forth in such cases.

*The Lochial Discharge.*—After the birth has taken place and the placenta has been removed, the woman experiences a discharge from the womb, which is at first red in color, consisting, probably, of little else than blood; afterward it acquires a greenish hue, possessing a peculiar and disagreeable odor. The lochia is considered purifying in

its character. It is a natural discharge which oozes from the orifices of blood-vessels laid open by the separation of the placenta from a portion of the internal surface of the womb. In all cases wherein a wound is made in the living body, or wherever the blood-vessels are by any cause laid open, there must be necessarily more or less discharge before the healing can be fully accomplished; and the same principle holds good in the womb as in other parts of the body. In quantity the lochia varies much in different cases. It may be three or four times as abundant, apparently, in one case as in another, both patients recovering, however, with equal facility or difficulty. The length of time varies also as much as the quantity of this discharge. It may last for a few hours only, for days, but more commonly for weeks. Fourteen to twenty-one days may be stated as its usual duration. Something, I think, depends upon the treatment. Cleanliness certainly has its effect in these cases. If a woman wash herself three or four times daily, and keep herself at all times as strictly clean as the circumstances will admit of, the process of healing must be materially hastened, the discharge rendered smaller in quantity, and less offensive in character.

*Inflamed and Broken Breast.*—Inflammation of the breast is one of the most disheartening things that can come upon a woman in the puerperal state. It does not, however, destroy life, but many sad weeks, and even months, in some instances, are spent in suffering caused in this way. It is brought on by neglect in keeping the milk sufficiently drawn, fatigue, care, anxiety, and especially seeing company too soon; by hot, stimulating food and drinks, feather beds, over-heated rooms, etc. In some cases it will come on do what we will to prevent it, and what may appear singular is, the patient seems often to be made better by a broken breast, after the manner of a crisis, as we suppose. Often, however, the inflamed breast does not break at all.

Cool and cold wet compresses locally, and wet packs, ablutions, etc., generally, are the means to be used in these cases. If the swelling comes to a head—breaks, as we say—it is better to let it open itself than to lance it, which is so often done. It gets well better and sooner to let it have its own way.

*Sore Nipples.*—In this most troublesome affection the water-dressing is also the best that can be used. Great cleanliness should be observed always after the child nurses. Those who have good constitutions and live hydropathically do not suffer in this way.

*Importance of Suckling.*—The mother ought always to nurse her own child, except in extreme cases of debility or disease. In some cases, such, for example, as quick consumption, the fever dries up the

milk, so that the infant must be nourished in some other way. Other things being equal, there is no period of woman's life in which better health is enjoyed than during lactation, provided this order of nature is fulfilled.\*

#### MANAGEMENT OF THE CHILD.

If a birth happens when a physician is not present, a thing which often occurs, women are generally in a great *worry* to separate the umbilical cord as soon as possible, and even doctors themselves are generally a good deal too quick in this procedure. Many a child has, indeed, been destroyed in this way. The cord should not be cut till all pulsation in it has ceased; otherwise the child is robbed of a portion of the blood which should naturally pass to it.

*Still-birth.*—In this case, the child should be taken near a window where the fresh air can come upon it, and cold water should be sprinkled upon its surface, and especially upon its face. At the same time a gentle degree of artificial respiration should be commenced, and this persevered in for a long time if necessary.

*Washing.*—Within a reasonable time the new-born child should be thoroughly cleansed from head to foot with tepid water and very mild soap. If necessary, a little oil or lard may also be used. The ablutions should be repeated at least twice daily.

*The Dress.*—This should be loose and flowing. The child should be made comfortable, but no flannel placed next the skin. No binder or belly-band is to be used.

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\* To every feeling and considerate mother inability to suckle is a serious evil, and, generally speaking, it is an evil of as great a magnitude to the mother herself as the child; for a free secretion of milk prevents many present and not a few eventual mischiefs. The health of women during suckling is, in most instances, better than at any period of their lives. Their appetite is excellent, their sleep sound and refreshing, their spirits free, their temper cheerful; but to any conscientious mother there is superadded to all this a pleasurable feeling of a still higher and richer kind. It is a sense of conscientiously discharging the maternal duty; it is the gratification of beholding the lovely babe to which she has given birth, saved from the cold caresses of a hireling to lie in the warm embraces of her own bosom—to grow from the sweet fountain which she furnishes from her own veins, rich, ample, and untainted—to swell with the tender thrill that shoots through the heart at every little draught which is drawn away from her—to see the cheeks dimple, and the eyes brighten, and the limbs play, and the features open; and to trace in every fresh lineament a softened image of herself, or of one dearer to her than herself. This is the luxury that awaits the mother whose unseduced ear still listens to the voice of nature, and estimates the endearments of domestic life at a higher value than the intoxicating charm of fashionable amusements and midnight revels. Though transported with the present, her comforts do not end with the present; for she has yet to look forward to a time of life in which, when those who have made a sacrifice of maternal duty at the altar of pleasure are wasting with decline, trembling with palsy, or tormented with the dread of cancer, she will still enjoy the blessing of unbroken health, and sink as on a downy pillow into tranquil old age.—Dr. Goor.

## CHAPTER XXV.

### PROCESSES OF WATER-CURE.

#### THE WET-SHEET PACK.

THIS is one of the most useful as well as one of the most *abused* of all the Water-Cure processes. When Water-Cure is first introduced in a particular place, people are more afraid of this application than any other; afterward they are more apt to go to the opposite extreme.

In this process we use a coarse linen sheet—although a coarse cotton one answers tolerably well—of length sufficient to reach from the patient's head to the soles of his feet, and about two yards in width. The bed is stripped of all its covering, one or two pillows only being left for the patient's head. One or two comforters are then spread upon it, and over these a like number of woolen blankets, which are not so much injured

Fig. 231.



WET-SHEET PACK.

by the wet as cotton comfortables. Or, what is better, but more expensive, we may use blankets only, two or more pairs as they may be needed. The sheet having been pretty well wrung out of cold water—pure and soft always if such can be had—is then spread out as smoothly as may be upon the upper blanket. The patient being undressed, lays himself at full length upon the sheet, and holding up his arms, an assistant laps one side of it over the body and lower limbs; the arms are then dropped at the side, after which the other part of the sheet is lapped over as before. The blankets are then, one by one, brought over the person in the same way, and tucked under from “head to foot,” and then comfortables in the same manner, if such are used. It is best always to place a wet towel covered with a dry one on the patient's head while he is packed, or if it does not chill too much, the dry towel may be left off. This is the ordinary way of taking a “pack” in *chronic* disease.

The wet sheet is one of the most soothing and agreeable of all water appliances, and, I may add, of all remedial measures known to man. Hence it is that the wet sheet is so often misused. It is so delightful, and tends so much to slumber, the patient never feels ready to get out of it. But this slumber—so profound and sweet as it often is—he should remember *may* be only an apoplectic stupor, that leaves him with a swimming, giddy feeling in the head, attended with faintness, perhaps, and ending in a severe headache; giving him, in short, a congestion, of more or less severity, in the brain. Now, all this happens in consequence of there being too much heat accumulated about the surface, and by robbing the skin too long of the air it should breathe. The skin, be it remembered, is a *breathing* apparatus, just as truly as the lungs are.

There has been a notion at some of the establishments that the wet sheet is to be used for sweating; and to this end the patient has been literally *stewed* hour after hour, in some cases, four, five, and even six hours in succession, with the view of sweating him. One practitioner went so far, even, as to say, *that he had the rooms of his establishment made very small, so that by the heat engendered the patient could more easily be made to sweat in the wet sheet.* All such practice as this is decidedly hurtful. If the patient gets better under it, it is only because of the good effects of water used in other ways, coupled with the ever-important adjuncts, air, exercise, and diet. In later times, Priessnitz never sweat patients at all, much less in wet sheets. If a man must sweat, leave off the wet sheet assuredly, as *that* only hinders the operation. Use, in short, the blanket pack or the vapor-bath.

How long shall a patient remain packed? Here, too, there has been much error in hydropathic practice, and still is in many quarters, I fear. "Stay in the pack till the patient becomes thoroughly warm," has been the old doctrine. But some get warm a little at first on being packed, and afterward get cold—so at least they feel. What is to be done then?

One of the most striking evidences of the masterly greatness of Priessnitz's mind is the fact that he was prone to "experimenting," and that, whenever he found out a better method than the one he had usually adopted, he was not ashamed to make a change. No one could, in fact, be more pleased than he always was when he discovered something valuable, however much it might conflict with his previous opinions and practice. Water-Cure, even as practiced by Priessnitz, had only a small beginning at first. So he went on, improving it from year to year as long as he lived, conquering fame and fortune, and earning a reputation more desirable than that of any other physician who has ever lived.

One of Priessnitz's improvements, then, was, *to give short packs*. "Remain enveloped for fifteen or twenty minutes only," he said. "If you are not able to bear the pack in that way, take the rubbing wet sheet and the lighter processes until you are." In some cases he gave two or three of these short packs in succession, the patient rising between each to take an airing, a rubbing wet sheet, or other bath, and then again to the pack. Oftener, however, only one was taken at a time, once, twice, or thrice in a day, as the case might be; and as to becoming warm, some American ladies told me at Graefenberg, in the depth of winter, *that they never, in a single instance, had begun to get comfortable*; yet they were improving as fast as any one could desire, notwithstanding they had been under the care of a number of the best allopathic and homeopathic physicians on both sides of the water. Cold water, in fact, cured them, but drugs could not. Nor were the applications made in a manner so *very comfortable* as some suppose must necessarily be. In these hard cases it is up-hill, self-denying work to get well, even in the best and only way.

Thus far I have spoken of the wet sheet as used in *chronic* diseases. In *acute* attacks it is managed differently, according to the case. If the object is to abstract caloric from the body, we cover the sheet but little—with a single dry sheet, or a blanket or two, or, perhaps, with none of these. If in a hot day we keep a wet towel about a keg of water, we know that by evaporation—a natural process—the water is rendered more cool. In the same way, if a patient is hot and feverish, we keep one, or, still better, two wet sheets about him, without other covering, and thus bring down the heat and circulation to any desirable degree. We sprinkle water upon the sheets, or rewet them as often as is necessary, in some extreme cases of fever continuing them constantly a whole week or more. "But what about your doctrine of the skin being a breathing organ?" some one objects. The answer is, in high fever the functions of the skin are destroyed. Moreover, experience teaches that the continuous application of the wet linen is in such cases a most serviceable application, and one that tends most powerfully to induce in the dermoid structure its natural and healthful state.

*The wet sheet acts also by absorption.* It draws morbid matter out of the body, as any one can see who applies it for a short time only, and then washes it. Observe, too, what an odor comes from the sheet when a diseased, *tobaccoized, narcotized, tea-and-coffeeized, and pork-eating* patient has been packed. At the same time, *the diseased body absorbs the pure water into its finest tissues on a large scale, thus supplying that fluid which of all substances the system under such cir-*

cumstances most needs. The moist warmth of the sheet also acts as a most soothing poultice, producing over the *whole* surface the same good effects as a *smaller* application on a *local* part.

*The Wet Dress.*—A modification of the wet sheet, and in some respects an improvement, is to have a coarse linen or cotton dress made with large arms, so that one may take the application without help. The dress once applied, the patient lays himself upon blankets, in which he wraps himself just sufficiently to become comfortable. Or he may have flannel dresses to put on over the wet, and then lie in a common bed. In this application the air is not excluded from the surface to any thing like the same extent as in the common tight pack. Hence, a patient may remain in it a half or the whole of the night if he chooses, being careful to become neither too warm nor too cold. Rewetting it once or twice in the night will be of service. Often in a single night a bad cold may be thrown off in this simple way.

*The Half Pack.*—Patients not unfrequently present themselves in whom the reactive energy is so low that a "half pack," as it is called, will be tolerated, while the entire sheet would abstract too much caloric from the body. In such cases the sheet is applied so as to extend only from the armpits, or, at most, from the neck to the hips, leaving the lower extremities, as it were, in the dry pack. Sometimes, also, the sheet is allowed to extend to the ankles, not including the feet. Packing the trunk of the body in wet towels acts upon the same principle as the partial or half pack, and is in many cases a valuable preliminary measure. These precautions it is well to observe where a feeble patient, who has suffered long from chronic disease, is beginning with the envelopment.

*The Folded Wet-sheet.*—As a modification of the wet-sheet principle, I have often used in domestic practice the following application: A common sheet of coarse quality is folded four double, which leaves it large enough to encircle the trunk of the body from the armpits down. Two thicknesses of the sheet, to come next to the body, are wet in cold water, or the whole of the sheet, according to the case. In a host of painful ailments, such as pleurisy, inflammation of the lungs, inflammation of the bowels, colic, cholera, cholera morbus, rheumatism, painful menstruation, after pains, etc., etc., this is the most valuable application. Often this remedy, which can be applied in a minute, as it were, will soothe a patient quickly to sleep, while without it a night of agony would be his lot. One advantage, too, of this appliance is, that if a patient is too weak to rise, the sheet may be opened in front, so that fresh water may, when needed, be sprinkled upon it, and wet towels may be added under it, upon the abdomen, if necessary.



In all the methods of applying the wet sheet, there can be no possible objections to using warm bricks, bottles, etc., for the feet when cold. I say *warm* applications, not *hot*, as we read in almost all the allopathic as well as hydropathic works. *Heat* is injurious, but *warmth* is as natural and useful in some cases as *cold* is in others.

It is the practice generally to take some form of bath after the pack. If the patient is too feeble to rise, an ablution is performed while he is in bed. In other cases, a wet-sheet rubbing, shallow, plunge, towel, or other bath is resorted to, but not of necessity strictly. It is better, however, as a rule, to make the process a compound one, that is, to take some form of bath after the pack. This should also be followed by exercise in the open air, if it can possibly be done. A pack followed by a faithful turn at work, or exercise in the open air, is always worth much more than one after which the patient remains within doors.

*The Rain-bath.*—A modification of the wet-sheet pack is for the patient to walk in the open air—bare-headed being preferable—till his clothes become thoroughly wet. Howard understood well the advantages of a “good soaking” of this kind in hardening the constitution. Every one who has arrived at adult age must have noticed, at some time of his life, how much better he felt after a drenching, having dried himself, and got on dry clothes. True, it is not every invalid that can bear this kind of hydropathy before he has become somewhat hardened to it, nor can *every one* be thus hardened, as, for instance, such as have incurably diseased lungs. But most persons can bear a rain-water wetting now and then, and with advantage, provided they see to getting warm, dry, and comfortable within a reasonable time after it.

I have repeatedly sent patients at my establishment out of a rainy day, bare-headed, with linen or muslin shirt and pantaloons only for clothing, directing them to continue their walk and wetting for an hour or two, according to the case, after which they had the well-wrung rubbing wet sheet and dry clothing. It would be well that every “cure” should have a suitable place for *ladies* to take this form of bath. It is not well to water-soak their hair as a general thing, but the remaining part of the process is as appropriate for the one sex as the other. Nor would I object to a warm foot-bath for either males or females, to be taken after this kind of aquatic exercise, if these parts should not have sufficient reaction.

*Plunging into water with the clothing on, and pouring water upon the person sufficient to saturate the clothing*, following the same by suitable exercise, is also a good method, provided the weather is neither too hot

nor cold, and the patient have the requisite strength to endure the process. It will, I trust, be understood that I do not recommend the *indiscriminate* use of these powerful measures. Good judgment is nowhere in the whole range of the medical art more needed than in the use of the more powerful of the hydropathic means.

### THE RUBBING WET SHEET.

The rubbing wet sheet—too little appreciated, and too seldom used—is one of the most valuable of all the hydropathic resources. There is probably no other single application of water, in all the multiform modes of hydropathic medication that can be made, on the whole, so useful as this. It is a tonic, a stimulant, a sedative, an antispasmodic, a derivative, or a febrifuge, according to the circumstances under which it is applied.

Fig. 232.



RUBBING WET SHEET.

We take a coarse linen sheet—although cotton answers a very good purpose—large enough to throw about the body like an Indian's blanket. It is wrung more or less, according to the demands of the case. Thereupon it is thrown quickly about the patient's body, who, if able, is in the standing posture—and then both patient and assistant set vigorously at work, rubbing *over* the sheet, not *with* it, as some do, three, four, or more minutes, until the surface becomes thoroughly warm. If there is

fever, however, less friction is required. After the wet sheet comes a dry one, used in the same manner. Those who have sufficient reactive energy, and most have, may dry the body simply by fanning it with the dry sheet, the windows at the same time being open. This sort of "air-bath" exerts a highly pleasurable and genial effect upon the skin. Instead of giving one a cold, it helps greatly to ward it off. This method of drying the body was one of Priessnitz's later improvements.

The rubbing wet sheet, it should be well remembered, is not a *single* application, capable of producing only one effect. It is used in *three* different gradations, and to produce very different results. It is well wrung, or only moderately wrung, or left quite wet and dripping. If a person is fatigued, or has a low degree of reactive energy, the first

form is the one to adopt; if there is not much fatigue, and good reactive energy, the second; and if the person is feverish, and the object is to abstract heat simply, we use the sheet quite wet dripping, as we say. We repeat it, moreover, as many times in succession as the case may need. One great advantage, too, is, that we give it before or after a wet pack, when no bath is at hand; we also give it in connection with any other bath we may choose.

See how admirable a remedy the rubbing wet sheet, properly understood, is! A patient—a child, perhaps—is so feeble in the reactive power, that almost any form of bath we can give it sends the blood from the surface, making the lips and nails pale or blue, and the extremities cold, showing congestion of the viscera. When a bath produces such effects, it is very apt—saying the least—to do more harm than good. But we can apply the rubbing wet sheet in such a way as to cause none of these ill effects; besides, it may be repeated many times in the day, so as to give the patient the advantages of a strong treatment; that is, a *light* treatment, which can be easily borne, is made a *strong* one by the *frequency* of its repetition. A wet sheet, well wrung, holds perhaps a pint of water; or, at most, a quart. Now it must appear plain, that a pint or quart of cold water spread over so large a surface as the whole skin, must become very easily warmed by the body's heat. Besides, if there is *great* delicacy of constitution, we may wring the sheet out of water at seventy, eighty, or even ninety degrees, gradually lowering it as the patient can bear it.

The *domestic availability* of this application is also to be spoken of. In every hamlet, however humble, there is the coarse sheet and the bucket of water. How useful, therefore, as a resort, in "home practice!"

The rubbing wet sheet appears a trifling application—one which is not capable of producing any great result. But when we remember the myriads of nerves of animal life spread over the skin, and derived from the brain and spinal cord, it need not surprise us that its application should so invigorate the body, take off bodily and mental depression, remove languor, fatigue, expel flatus from the bowels, remove thirst, give appetite, and cause a feeling of calmness and relief which can be appreciated only by those who have experienced it. A preacher, for example, preaches three times on a Sunday, and gets his brain so excited that he can not sleep. A cold-bath would be too powerful, and opiates would only act as stimulants, making the matter worse. Two or three successful applications of the rubbing wet sheet, with powerful friction, bring the blood so much to the surface that his brain becomes relieved, and he very soon falls into a sound and quiet

sleep. So, too, if a man has been long wet and drenched of a rainy day. He comes home with the surface and extremities cold, the blood pressing hard upon the brain and other viscera. The well-wrung rubbing sheet is applied with plentiful friction, and at once the oppressed organs are set free.

I should remark that in using the rubbing wet sheet, as in all other forms of general bath, it is well to wash the hands and face in cold water both before and after it. I do not see any need of throwing it over the head, as some have considered it necessary to do. A patient needs to breathe freely when he takes a bath.

This application is not always the most pleasant one. It does, in fact, require a good degree of moral courage to enable one to endure the first shock. To the sensations it is worse, if possible, than to plunge into cold water. I mean the first touch of the sheet to the body. Nervous ladies sometimes tell us they can not take the rubbing wet sheet, when, at the same time, they take the cold plunge, which is far more powerful, and too powerful for their case perhaps. This unpleasant feeling does no harm, for it vanishes the very instant after the sheet touches the body.

#### THE DOUCHE-BATH.

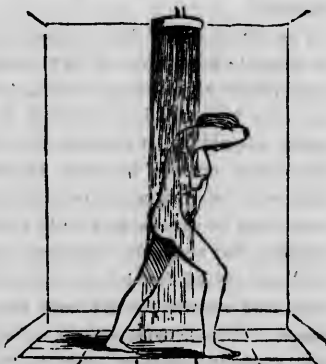
This is the most powerful, but not the most useful, of all hydro-pathic appliances. A common douche consists of a stream of water from one to two inches in diameter, with a fall of ten, fifteen, or twenty feet. But douches may be arranged of any desirable size and height. (See fig. 233.)

Fig. 233.



DOUCHE.

Fig. 234.



SHOWER-BATH.

This remedy is useful in paralysis, stiff joints, gout, rheumatism, tumors, and old swellings of various kinds. Those who have weak lungs, stomach, or other abdominal organs, should not resort to the douche without the best of medical advice.

## SHOWER-BATH.

This is also one of the more powerful of the hydropathic appliances, and needs judgment in its use. It consists, in fact, of a vast number of small streams or douches, and hence is a powerful refrigerant as well as excitant to the system. It should never be taken upon the head, especially if the water have any considerable force or fall from any considerable height, *for the reason that the head should never be subjected to mechanical force.* It is useful in some cases to commence this bath only upon the limbs for a time at first. (See fig. 234.)

## CATARACT-BATH.

This is also one of the more powerful of the hydropathic processes, and is to be classed with the two preceding baths. Like those, it may be said to be stimulant, tonic, and alterative, while it is also highly sedative so far as animal heat is concerned. (See fig. 235.)

## HOSE-BATH.

Through the modern improvements in India-rubber, gutta percha, leather, etc., it is easy, wherever there is a small fall or head of water,

Fig. 235.

Fig. 236.



CATARACT



HOSE.

to arrange what is called a hose-bath. It is in principle a douche, with the additional advantage that it can be made to act upon any part of the body, and from whatever direction we choose. Rightly applied, the hose is a valuable means. (See fig. 236.)

## PAIL DOUCHE.

The process Dr. Edward Johnson has designated by this name, is taken thus: The patient seats himself in an empty, shallow, or other bathing tub, and crosses his hands over his chest. As many pails of water as are ordered are then dashed over him suddenly, one after the other, and one before and one behind—not poured, but thrown with some force, by first a backward and then a forward motion of the pail; half the number of pails being then emptied on the back of his folded hands, and half between the shoulders behind. This bath varies in effect according to the temperature of the water and the amount used. If a number of pails are used, and the water cold, it, in effect, very nearly resembles the common plunge.

## THE WAVE OR SLUICE-BATH.

What is generally called in Germany a wave, but more properly a *sluice* bath is taken at the sluice-way of an under-shot mill-wheel, or in any similar place. The patient takes hold of a rope or something by which he can maintain his position, and then, lying down, subjects his body to the action of the water. This is, on the whole, a pleasant and agreeable bath, and in its effects somewhat resembles the douche, being, however, milder and safer. The sluice-bath can hardly be said to possess any peculiar advantages. It was not used by Priessnitz, although he did not object to it.

## HALF-BATH.

This bath may be used as one of the mildest of Water-Cure processes, or as one of the most powerful. An ordinary bathing tub is a very good apparatus for the purpose. A good-sized washing tub will answer very well, if there is nothing else at hand. The water is generally quite shallow in this bath—from three to six inches. Priessnitz's half-baths were made of wood, four or five feet long, about two and a half feet wide, and twenty inches deep. This simple contrivance is one of his most powerful means—that by which some of his highest triumphs are achieved. The water is generally used of moderate temperature, at sixty to seventy degrees Fahr., and when long continued is changed, as it becomes warm from the heat of the body. This bath may be used—1st. As a means of cooling the mass of the circulation in the hot stages of fever, and inflammatory attacks of every kind. 2d. As a revulsive, or means of deriving blood in congestions or inflammations of the nobler organs, the brain, lungs, stomach, liver, etc. 3d. As a means of resuscitation in the shock of se-

rious accidents, sun-stroke, and before, during, or after apoplectic and other fits. In drunkenness and delirium tremens, the half-bath is a sovereign remedy. 4th. As a milder means, and preparatory to the general bath in weak constitutions. In the latter of these indications, the bath is generally used but for a few minutes after the wet sheet, or at other times, as may be desired. In the former, much practical knowledge is necessary in order to proceed always with safety, and to obtain the best results. Thus six, or even nine hours may be required, with the greatest perseverance, the patient being thoroughly rubbed over the whole surface, and this to be kept up constantly by relays of assistants, the patient's head and shoulders being supported meanwhile. (See fig. 237.)

Fig. 237.



HALF-BATH.

Fig. 238.



PLUNGE-BATH.

### PLUNGE-BATH.

In sea, river, and lake, as well as by artificial means, and as a matter of luxury, religious observance, purification, and the prevention and cure of disease, the plunge-bath has, in all periods of time, and in all parts of the world, been a favorite resort. So efficacious, indeed, has this simple means proved in healing the sick, that not a little superstition has been mingled with it. Springs and wells have often been supposed to possess some mysterious power, and for that reason been named after some patron saint. In this respect, the world has loved mystery and marvelousness rather than the pure and simple truth.

In hydropathic practice the plunge is much used; but it is not every patient who is able to bear it. Those who are not sufficiently strong for it at first should practice the rubbing wet sheet, half-bath, hi-bath, drinking, exercise, etc., until the plunge can be borne. It is

a favorite remedy at all of the establishments, to be taken directly on coming from the wet-sheet pack. (See fig. 238.)

### HEAD-BATH.

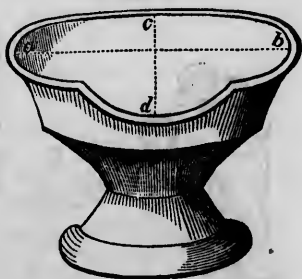
From time immemorial, cooling applications to the head have been much depended upon in that violent and dangerous disease, inflammation of the brain. All other known means failing, certain obstinate affections of the head have been known to give way to the affusion of cold water upon the part. In headache, drunkenness, delirium tremens, the delirium of fever, epilepsy, rheumatism of the head, diseases of the eye, earache, deafness, loss of smell and taste, and in nose-bleed, this highly energetic remedy is brought to bear. (See fig. 239.)

Fig. 239.



HEAD-BATH.

Fig. 240.



VESSEL FOR THE HEAD-BATH.

### LEG-BATH.

This is useful in cases of ulcers, swellings, eruptions, gout, or rheu-

Fig. 241.



LEG-BATH.

Fig. 242.



SITTING-BATH.



-matism, sprains, wounds, etc., of the leg and thigh. The relief and strength obtained, often by a single application of this remedy, is truly wonderful. A variety of apparatus may be contrived for administering the leg-bath. A common wooden tub, constructed for the purpose, is a very good one. (See fig. 241.)

## SITTING-BATH

Convenient tubs, wooden or metallic, are constructed for this bath; but an ordinary wash-tub answers very well. The article should be large enough to admit the motion of the arms in rubbing the abdomen, sides, and hips, first with one hand and then the other. Water enough is used generally to come pretty well up the abdomen. The more movement and friction, while in this bath, the better. It is more convenient if the tub be elevated two or three inches from the floor. Some undress completely, and place a blanket or sheet over the upper part of the body, but oftener the parts only of the person to be exposed to the water are uncovered. In a variety of ailments this bath is highly valuable. It may be made one of the most powerful of all of the hydropathic modes. Like all other powerful applications, it should be taken only after digestion is nearly or quite gone through with.

As a tonic to the stomach, liver, bowels, womb, spine, etc., this bath is highly useful. In constipation and other irregularities, it is famous. Those of sedentary habits will find its use of rare service. For the tonic effect, it is taken ten to twenty or twenty-five minutes or more. If it is continued some length of time, the water is to be changed once or more, as it would otherwise become too warm. (See fig. 242.)

## WASHTUB-BATH.

Under a great variety of circumstances, what may be called the "washtub-bath," is an invaluable resort. For example, a patient is feverish; by sitting him in a wash-tub half filled with water, and at the same time if we choose, having his feet in a pail of water, cold or warm, according to the case, we can give him any desirable amount of cooling. We can not, indeed, too highly prize this simple contrivance for using water—a means which every family possesses.

Fig. 243.



WASH-TUB BATH.

## THE AFFUSION.

The patient stands in a wash-tub, bathing-tub or other convenient place, when by means of a pail, pitcher, or basin, the assistant pours water upon the head, neck, etc., either upon the whole of the body or only upon a part. The water is used in quantity and temperature according to the necessities of the case. The affusion is one of the best of hydropathic modes.

Fifty years ago, Dr. Currie, of England, performed great cures in fever by the affusion, sometimes tepid, at others cold, according to the strength and heat of the patient. If there was great heat the water was used cold; if not, the reverse. In a variety of febrile diseases, such as typhus fever, scarlet fever, small-pox, measles, tetanus, convulsions, etc., he used this remedy with remarkable success

## TOWEL AND SPONGE-BATH.

With one or two coarse towels and a quart or two of water we may take a very good bath almost anywhere, even in a carpeted room, at a hotel, or wherever we may be, without spilling a drop of the water. After a person becomes accustomed to this form of ablution, none but the most indolent will be willing to do without it, unless they can have some other form of bath. A daily towel ablution, thoroughly performed, is an excellent prevention against colds, helps the appetite and digestion, and is a good means of preventing constipation.

Some are in the habit of sitting in a half-bath or a sitz-tub, and with a large sponge making the water pass freely upon the head, neck, shoulders, and other parts of the body. At the same time the bather may pour water from a cup, basin, or pitcher, upon the head, neck, etc. This is a mild affusion, and stronger in effect than the towel-bath.

## WASH-DOWN.

The process to which this name is given by Dr. Edward Johnson, is practiced as follows: "The patient stands in an empty sitting or wash tub, beside which stands a pail of cold water with two coarse towels soaking in it. The bath attendant, taking his place behind the patient, lifts one of the towels, all loaded with water, and lays it quickly on the patient's head. The patient immediately seizes it, removes it from his head, and rubs himself rapidly with it—his face, his throat, shoulders, arms, chest, stomach, bowels, thighs, and legs. Having gone rapidly over the whole body once, he drops his towel into the pail again, which the bath-man presses down to the bottom of the water,

then lifts out, and places it on his head again. As before, the patient seizes it, and goes all over the same ground once more, and then drops it into the water again, when the bath-man again lifts it and places it on the head to be a third time removed by the patient, and applied as before, rapidly, actively, and energetically, all over his body in front. The bath-man is industriously occupied all the time behind in the same manner, from the back of the neck to the back of the legs, wetting his own towel as often as he wets that used by the patient, viz., three times. This is called a wash-down of three towels. The patient is then dried in a dry sheet. It is a more powerful bath than the common towel-bath, but not in all respects so convenient to take.

#### THE COLD FOOT-BATH.

One of the first things people who are troubled with cold feet do, is to plunge them into cold water. Nor is the assertion put forth in some of the hydropathic works, that the cold foot-bath was prescribed by Priessnitz for the same purpose that the faculty order warm ones, correct. When the feet are already cold, neither Priessnitz nor any one in his sober reason would prescribe cold water, which can only make the parts colder. To obtain the good effect of the cold foot-bath, so far as the feet are concerned, they should be warm whenever it is taken. For a tendency to coldness of the feet—a very common symptom in these days of so-called luxury and refinement, and one that indicates a state of things in the system incomparably more to be dreaded than the mere coldness of the feet, this is *the* remedy. It may be taken at any convenient time; just before the morning walk is a very suitable occasion, the parts being usually warm early in the day.

At other times if cold, they should if at all practicable, be warmed by exercise and friction, before subjecting them to the action of cold water. But in cases of old age, great debility, etc., the warm foot-bath, and other warm applications may be resorted to before the cold. Thus with cold, exercise, and friction, accustoming the feet daily and frequently to cold water, will beget in them a habit of remaining warm. In a great variety of ailments, such as toothache, rush of blood to the head, headache, earache, inflammation of the eyes, gout, rheumatism, hemorrhages, etc., the cold foot-bath is a valuable remedy. It is ordered deep or shallow, and of duration according to the nature of the case

#### WADING FOOT-BATHS.

I have often directed patients to wade in water in some convenient place, as a means of hardening the system and of giving tone to the

nerves. Delicate ladies who were not able, as they supposed, to endure cold water applied to the feet, have by degrees, wetting the feet but little at first, become so accustomed to the coldest water, that in a few weeks they could bear as much as any one would desire. Caution and perseverance should be the rule.

It is partly by sympathy and partly by the abstraction of heat, that foot-baths and wetting the feet act in so beneficial or deleterious a manner as we know them to do. The principle of sympathy is an old one in the medical art, but none the worse for that.

#### THE WARM FOOT-BATH—PEDILUVIUM.

I am aware that some who consider themselves *genuinely hydropathic*, object to the use of this remedy. Having truth for my object, however, I care not for such objections so far as myself am concerned, and without stopping here to argue the question, I simply remark that *warmth* under some circumstances is as natural an application for the living body, as *cold* under other circumstances. I have already remarked under the head of the cold foot-bath, that putting the feet into warm water is often a good preparatory process to that bath. It is good also, now and then, for soothing divers aches and pains, and also for warming the feet of old and weakly people, who can not exercise sufficiently.

#### THE NOSE-BATH.

In a variety of nasal ailments, catarrh, colds in the head, inflammation and ulceration of the nasal passages, nose-bleed, etc., the *nose-bath* is a salutary remedy. The water is used either tepid or cold, according to the case. It should be drawn back if possible, so that it is ejected by the mouth. Those who have injured the nasal cavities by much snuff-taking, will find advantage from sniffing water freely into the nostrils. If one is determined to leave off snuff, as every one addicted to it, if he regards either health or bodily comfort, ought, will find it useful often to take cold water, instead of the abominable weed.

#### THE EYE AND EAR BATH.

Various contrivances may be brought to bear in applying water to the eye and ear. Light, ascending douches and showers are useful in various diseases of the parts. There should not be much force used in this way. Immersing them also in water is often useful. The water should not, in general, be very cold, tepid or warm being often the best.

## MOUTH, OR ORAL BATH.

For inflammation of the gums, mouth, throat, and palate, in slimy secretions from the throat and stomach, in toothache, catarrh, colds and chronic hoarseness, garglings and baths for the mouth are of great service. Pauley, a merchant of Vienna, has been thought singular for his zeal in recommending this bath. Clergymen and others who suffer hoarseness by much speaking, will find that holding very cold water in the mouth until it begins to grow warm, and then ejecting it, and by frequently repeating the process, much benefit will be obtained. Falling or elongation of the palate, in which it is now so much of a professional hobby to clip off the part, the gargling sufficiently with cold water will be found a never-failing remedy. Coughs and tightness in the chest may often be essentially relieved by this bath. In mucous secretions from the throat and stomach, by ejecting the water a number of times, it will surprise those who have not witnessed the remedy to see the amount of slimy secretion thrown off.

## DIVISION OF BATHS.

On no one subject connected with hydropathy has there been more "confusion of tongues," than concerning the temperature of baths. Both in books and in popular language, among physicians as well as laymen, have words been used, sometimes confusedly, and at other times without any meaning whatever. Orthodox medical works, as well as the *unorthodox*, come under the same category of error. A few simple explanations on this head properly made, will be, I consider, sufficient for all practical as well as scientific purposes; and while treating of this subject according to the most rigid principles of science, I shall at the same time, I trust, make myself so plain that the most ordinary reader will be able to comprehend it.

The simplest and most natural division of baths is into *cold*, *warm*, and *hot*. These are, so to say, the great lines of demarkation in the arrangement of baths. But there is still one other distinction used in common parlance, and which will serve as an important guide in practice. The division of baths I would make, then, in the present work, is *cold*, *tepid*, *warm*, and *hot*. These are all terms of every-day life, and are fully sufficient to guide us in the selection of any and all the multiform uses of water which hydropathy teaches. I admit, however, that when we wish to be especially explicit, the actual thermometrical temperature should be mentioned. *Hot* baths, I maintain have no proper place in hydropathic practice. He who resorts to them either does not at all understand the true principles of the Water-

Cure, or is guided merely by the whims or caprices of those who employ him.

But whatever words we use to designate the different baths, there is one objection, which is, that all such terms are necessarily arbitrary in a greater or less degree. What appears to one person cold, may to another appear tepid, or warm, or even hot. Thus it is said that on a road over the Andes, at about half way between the foot and the summit, there is a cottage in which the ascending and descending travelers meet. The former, who have just quitted the sultry valleys at the base, are so relaxed, that the sudden diminution of temperature produces in them a feeling of intense cold; while the latter, who left the frozen summit of the mountain, are overcome by distressing sensations of extreme heat. If on a cold winter's morning we go from a warm bed to a bath of sixty to seventy degrees Fahr., the water appears cold. If we then plunge immediately into water which is at about the freezing point, and then return again to the water at sixty to seventy degrees Fahr., it appears warm. When the temperature of the atmosphere is at fifty-five degrees Fahr., in November or October, in this latitude, and the body of a comfortable degree of warmth, and we take three basins of water at sixty, seventy, and eighty degrees Fahr., placing one hand in the water at sixty degrees, the other in that at eighty degrees, letting them remain thirty seconds in each, and then immerse them both in the water at seventy degrees, it appears to one *cold*, to the other *warm*. These facts, then, show conclusively that the terms cold and warm are to a certain extent arbitrary.

But we can arrive at rules which approximate so nearly to the actual truth, that they will serve us, as before remarked, for guides in all practical and scientific purposes.

*The Cold-bath.*—With a majority of persons, and at most seasons of the year, water at from seventy to eighty degrees Fahr. downward, gives, when immersed in it, a sensation of coldness. The spring water of all countries furnishes what may therefore be called a cold-bath, although there will be a range of many degrees variation in what we term cold.

*The Tepid-bath.*—The word *tepid* is from the Latin *tepeo*, to be warm. The true English meaning of the term however is, according to Mr Webster, *moderately warm*, or *lukewarm*; in other words, water which, when a person is immersed in it, gives a kind of indefinable sensation, one which coming properly under neither *cold* nor *warm*, is said to be *tepid*. This temperature will be found to range at from eighty to ninety-two degrees Fahr.

*The Warm-bath.*—The term *warm* is generally well understood

It means that temperature of water which is peculiarly agreeable to the sensations. Fresh-drawn milk or blood we say are warm. The temperature of water which on immersion will be found to cause this sensation, varies from ninety-two to ninety-eight degrees Fahr.

*The Vapor-bath.*—The temperature of the vapor of simple water varies from about ninety degrees Fahr. upward, according to the heat of the water, and the space through which the vapor passes.

*The Hot-bath.*—The term *hot* is also expressive of its proper meaning. If the body is immersed in water above blood-heat, it causes an uncomfortable sensation, which we designate as *hot*. Hot water is a disturber of the vital functions, particularly if the whole body is immersed in it. Hot-baths, therefore, should be used, if ever, only in a most urgent necessity. Hot water, in no form whatever, entered into any part of Priessnitz's treatment.

Having thus explained the temperatures of the different divisions of the bath, it is proper to state them in a tabular form, the better to aid the memory. They are as follows :

|                                    |                 |
|------------------------------------|-----------------|
| Cold-bath from freezing point..... | 32 to 85° F.    |
| Tepid " .....                      | 80 to 92°       |
| Warm " .....                       | 92 to 98°       |
| Vapor " .....                      | 90° and upward. |
| Hot " .....                        | above 98°       |

I now propose to explain somewhat minutely, and at the same time with a due regard to the needs of the non-professional reader, the physiological effects of each of the several kinds of bath, and I here respectfully premise that any one who attempts to practice the water treatment without having in his mind clear notions upon this subject is, to say the least, as much a "groper in the dark" as he who attempts the practice of drugs of which he knows nothing, upon the living body of which he knows less. How can a man be trusted in water treatment if he can not tell beforehand what effect a bath is to have ; and this he can not if he does not fully understand the meaning of the terms which I have here explained.

*Effects of the Cold-bath.*—The effects of the cold-bath are properly spoken of under two heads, the *primary* and the *secondary*. The terms are sufficiently expressive of their meaning. The first are those which take place at the time of the immersion ; the second those that occur later, constituting what we understand by the term *reaction*.

Immediately on immersion in cold water, the bather experiences some acceleration of respiration and the heart's action, although the pulse becomes at the same time smaller and weaker. Very soon, however, the *panting*, if I may so call it, passes off ; the temperature of

the body is found diminished, the surface paler than natural, the skin taking on that form of appearance known as "goose-flesh."

The first effect of cold water applied to the body, generally, is to abstract a certain amount of heat from the surface, to constrict the capillary vessels, and to force the blood inwardly. Now, as the living body possesses the remarkable property of maintaining its temperature at very nearly the same point, whether it is in a colder or hotter medium than itself, the vitals at once set to work in restoring the caloric abstracted by the contact of the water; and as the functions of circulation and calorification go necessarily together, the vital power, acting through the heart and blood-vessels, attempts a return of the blood that had been forced inwardly by the coldness of the water.

This is what we call reaction. If the individual is sufficiently strong and well stocked with vitality, the blood is quickly returned to the surface and to the extremities (which are always most liable to become cold, being farthest from the heart), constituting what is termed *good*, or *vigorous* reaction. But if the surface and extremities continue to remain unwarmed by this return of blood to them, as happens in the case of feeble persons, there is said to be *poor*, or *insufficient* reaction.

So far, then, as animal temperature is concerned, the cold-bath is *lowering* in its effects upon the body. In the language of the books, it is a *sedative*.

In reference to ascertaining the sedative effects of the cold-bath I have often made experiments, of some of which notes were kept. The following was made some years since:

June, 1845, H. Degroot, Esq., of this city, age about twenty-five, had a recurrence of intermittent. I had cured him of the ague by the water processes about two weeks before. By overdoing in business and improper eating, the disease was again induced.

At twenty minutes past four, P. M., his pulse was full and hard, one hundred and two beats per minute; respirations, twenty to twenty-one; animal heat under the tongue, one hundred and three degrees Fahr.; temperature of the atmosphere, eighty-five degrees Fahr.

He took a Croton shower-bath, the water at seventy-eight degrees Fahr., at a fall of four feet, first in the palms of the hands, and washing the face, temples, neck, and chest, and then upon the head, over which the hands were held to shield this part, and upon the whole body for the space of seven minutes. He was not exactly under the shower during the whole of this time, but for the most part of it. He kept up as brisk a rubbing with the wet hands as his strength would allow. After this bath the following observations were made:



|                               |                                       |
|-------------------------------|---------------------------------------|
| 8 minutes after the bath..... | animal heat 101 $\frac{1}{2}$ ° Fahr. |
| 4   "   "   "   " .....       | pulse 85, soft yet firm.              |
| 10   "   "   "   " .....      | respirations 16 to 17 per minute.     |
| 15   "   "   "   " .....      | pulse 83 per minute.                  |
| 17   "   "   "   " .....      | animal heat 101° Fahr.                |
| 18   "   "   "   " .....      | respirations as at 10 minutes.        |

The observations, both before and after the bath, were made upon the body while in the recumbent posture.

The pulse afterward continued to rise very slowly. The patient now rose from his bed, feeling almost wholly relieved from a severe pain in the head, from which he had suffered, and which is common in this disease. The pains in the limbs and back had ceased entirely. Feeling a slight degree of fullness in the head, yet much less than before the bath, a small, gentle stream of water was allowed to come upon the head for some time, the object being to further cool the part.

In one hour and fifteen minutes the pulse had risen to eighty-eight, but was yet soft and compressible. At the same time the animal heat had fallen a trifle, being one hundred and one degrees Fahr.

The patient had been in the habit of taking a cold-bath daily previously to this last attack.

It need not be remarked to the initiated that this case might have been treated properly in a variety of ways. The cold plunge, shallow, sitting, and head baths, cold clysters, and the wet pack would all have been appropriate, tending to the same end, to wit—bringing down the heat and circulation, and removing the pains. As it was, I used what was most convenient. A much larger amount of treatment would also have been appropriate. If I had had one or two strong men to rub the patient, and had placed him in the half-bath at Croton temperature, and had him rubbed with wet hands a half hour or hour, changing the water as it might need, the pulse and heat could have been brought fully down to the standard-point of health. The patient, however, feeling so much relieved from what was done, there appeared to be no necessity for any further treatment at the time.

At the expense of some repetition, I wish here to insist upon the permanently sedative effects of the cold-bath. Here is where our great power in treating acute diseases with cold water lies. All the drugs in creation, and the lancet combined, are comparatively powerless when contrasted with cold water as a means of regulating the animal heat. And as to which of the methods is *safest*, let honest, intelligent allopaths themselves decide. There can be no two opinions on *that* point.

The rules which should govern us in the administration of so powerful a remedy as the cold-bath should be deeply pondered by all who

attempt its use. These rules will be given in the present volume under the head of "Rules for Using Water."

Many wonderful things have been recorded concerning the effects of cold water in a great variety of diseases. It would be instructive to refer to some of these in this place; but enough, I trust, has already been said in this volume on the subject.

*Effects of the Tepid-bath.*—The tepid-bath, which we have seen ranges from eighty to ninety-two degrees Fahr., produces effects analogous to those of the cold-bath, only not so lasting and permanent. It is especially useful in the treatment of infants and children, and in all cases where the reactive energy is feeble. If in any case we are in doubt as to whether the cold-bath is admissible, the tepid form will be a milder measure, and at the same time serve as a test in venturing upon the cold. The tepid-bath may be continued longer at a time, which in some cases will be found an advantage.

*Effects of the Warm-bath.*—There is among hydropathic physicians, if I am not mistaken, too great a fear of warm applications on the part of some, while others go to the opposite extreme. Mark, I speak of warm applications. Hot, as before remarked, have no proper place in hydropathy—a rule to which the exceptions are few.

The warm-bath, as before remarked, ranges from ninety-two to ninety-eight degrees Fahr. It is not the *most* useful of the hydropathic resources, but *one* of the most useful, as I shall endeavor hereafter to show.

Among the ancient Romans the warm-bath was not considered as a means of luxurious indulgence that tended to weaken the vital powers, but as a means of refreshment for the wearied traveler, and of preparing him for the repast and the enjoyment of other rites of hospitality. The effect of the warm-bath is not one of debility, as many suppose, but, on the contrary, it is a sedative, lowering the heart's action and the circulation, and tending to repose rather than excitement.

*Eruptions Caused by the Warm-bath.*—Authors on bathing tell us a prolonged use of the warm-bath from day to day, for a considerable period, is followed, in many cases, by cutaneous eruptions, similar to those we often obtain by a common course of hydropathic treatment. It is said that patients in some parts of Germany who are affected with nervousness, owing to what is believed to be acrid or foul humors, and who yet have strength enough for the treatment, are sent to Pfeffers, or Landecke, in Silesia, with a view of being subjected to the warm-water cure. "Beginning with an hour or two," observes Dr. Bell, "the period (of bathing) is gradually extended so as to include nearly the whole of the day. The patient is seated in the bath so that about one half of the body is immersed in the water. The other or

Oct. 6th, 1845, at evening, four hours after a full meal. Dr. B. went with myself to make an experiment with a warm-bath. Dr. B. is about fifty-five years of age, of naturally feeble health and highly susceptible to the impression of cold. We walked about one half a mile, rested awhile in order that the circulation might become of its natural force, and then commenced preparing for the bath. The tabular form will best show the result of the experiment :

|  |            |
|--|------------|
| Temperature of the atmosphere.....                 | 57° Fahr.  |
| Pulse in the sitting posture.....                  | 86°        |
| Animal heat.....                                   | 98½°       |
| Bath, of temperature.....                          | 98½°       |
| At the end of 3 minutes after immersion pulse..... | 68 beats.  |
| “ “ 5 “ “ .....                                    | 70 “       |
| “ “ 6 “ “ animal heat.....                         | 98½° Fahr. |

Thus we perceive, taking the frequency of the pulse as our data, that the warm-bath in this case was decidedly sedative. If we make due allowance for the greater frequency of the pulse in the sitting than in the reclining posture, we find still that the effect was to diminish somewhat the action of the heart. The pulse was likewise re-

dered softer than before the bath. The effect upon the feelings was most grateful. Care was taken that the bath was kept fully up to the temperature of the body, ninety-eight and a half degrees, by letting in hot water as was needed. There was no sensation of fullness at the head as is sometimes complained of in warm-baths. No chill took place after the bath, nor the slightest weakness, but, on the contrary, a feeling of slightly increased strength. Judging from all the sensations and effects of the bath, both at the time it was taken and onward, the result was most excellent. Sleep was very sound and refreshing.

There was one circumstance of which I was not aware at the time of the bath that might possibly have modified to some extent the effects. Dr. B. informed me that after entering the bathing establishment, a little circumstance took place that in some degree caused unpleasant mental excitement. This might have caused a greater elevation in the pulse before the bath than would otherwise have been the case. Not being much in the habit of bathing by immersion, and there having been somewhat of a dread in lowering the body into the water, the sedative effect for the first three minutes might have been greater than it otherwise would have been.

One of the most prominent among the effects of the warm-bath is that of calming undue nervous excitement. If by reason of undue mental labor, excessive joy, grief, or other unpleasant mental impressions, a man is unable to obtain that repose which nature demands, the warm-bath, taken for a space of five, ten, or fifteen minutes, according to the nature and urgency of the case, will have a most salutary effect, often causing sleep at once when, without it, wakefulness would only occupy the mind.

The warm-bath is not only suited to the delicate, and those who have feeble reactive powers generally, but is especially useful for the aged. Dr. Darwin recommended Dr. Franklin to use it twice a week in the latter part of his life, a practice which he continued till near his death.

The warm-bath is contra-indicated in some cases; and by the abuse of the remedy individuals have harmed themselves without doubt. Those who are very feeble, as well as the plethoric, and those who have a tendency to too great fullness of the head, should not make use of a prolonged warm-bath. In all cases where there exists any doubt on the subject, it is the part of prudence to make the stay in the bath a very short one. Two, three, or five minutes' immersion might prove not only safe but serviceable, while remaining in it a half hour or hour might prove not only harmful, but possibly dangerous. Above all, the too common blunder of taking a *hot* bath for a warm one should be avoided.

*Effects of the Vapor-bath.*—There are among many hydropathic phy-

sicians, especially in the old country. a strong prejudice against the use of the vapor-bath. The objections to vapor-bathing are properly those against its abuse. The vapor-bath is, I am confident, capable of being made a highly useful auxiliary in the treatment of disease. As it is generally used, however, it is made altogether too violent a measure, and one that disturbs rather than aids the vital powers. If we over-excite the system by heat in whatever way applied, we do it harm.

One objection to this kind of bath is its expensiveness. If vapor-baths could be given as readily as cold, they would be used much more than they have been, even in hydropathic establishments, I am confident.

An advantage of this mode of bathing is, that while the skin is subjected to the action of moist vapor, it is at the same time allowed to come in contact with the air. This is a great desideratum, particularly if the bath is to be a prolonged one. The skin *naturally* breathes air. Hence the advantage of allowing the air to come freely to its surface is apparent.

The vapor-bath, used with proper precautions, is much to be preferred to the dry or sweating blanket, which was at one time so much in vogue in hydropathic practice, and is yet adhered to by some who do not understand the treatment or care to keep pace with its improvements. I admit, an over-heated vapor-bath is as objectionable as almost any objectionable application; but if its temperature is kept at or below the heat of the blood, the patient at the same time breathing pure, cool air, which he always should in this bath, it can be made not only a very pleasant, but salutary hydropathic appliance.

In consequence of the superstitious notions that some drug substance is always necessary in the treatment of disease, vapor-baths have usually been medicated. Not only the vegetable kingdom, but the mineral and the animal have been called upon to contribute to this superstition in the use of the vapor-bath. It is now, however, well ascertained, that the vapor of pure water is not only as useful as any medicated vapor, but more so, and far more safe.

In vapor, as in all other forms of warm bathing, it is well after the bath to wash the person with either tepid water or that which is moderately cold. Without this precaution, in some instances a cold would be taken. A washing with a wet towel simply is all that is absolutely necessary, although it is, in many cases, a useful practice to combine strong cold-baths with the vapor or the warm. The principle of compound baths, as I have elsewhere observed, is one of the most important in hydropathic practice.

*Effects of the Hot-bath.*—The hot-bath, before remarked, is one which is above the temperature of the blood, ninety-eight degrees Fahr. It

was laid down as a precept by Hippocrates, that a bath enfeebles when the heat exceeds that of the body immersed in it. The truth of this precept has often been verified in practice.

I do not wish to be understood as affirming that hot applications can never be made with benefit to the body; on the contrary, heat applied to a part locally may be of service, although I am inclined to believe that even in those cases where heat acts in a beneficial way, some other form of hydropathic appliance can be used more beneficially. I make, it will be remembered, a broad distinction between the terms *hot* and *warm*.

The first and more direct effects of the hot-bath are, to cause redness of the cutaneous surface, and acceleration of the pulse and of the respiration. If it is continued for any considerable time, a profuse perspiration breaks out, on the same principle that perspiration comes on when the body is overheated in any other way. The reason why perspiration issues forth under these circumstances is, that the system being, as it were, attacked by an enemy, the heat sets at work to throwing out a portion of serum from the blood, to cause upon the surface an evaporation, which is by nature always a cooling process. Thus admirably does nature operate in the living body to ward off the evil that is put upon it.

Besides the effects above mentioned as arising from the effects of heat upon the surface of the body, the mind is liable to become stupefied, and otherwise unpleasantly affected, and if the immersion is prolonged for any considerable period, vertigo, apoplexy, and even death may supervene. Although the system has the same tendency toward regulating and maintaining its temperature in a medium of a higher temperature than its own as well as in a lower, heat, be it remembered, is a far more dangerous remedy than cold. Cold, while it does, under certain circumstances, do harm, does yet, on the whole, tend to preserve the vital principle, while the direct and most prominent effect of heat is to destroy that principle, and to cause decay. This is a fact in regard to the comparative effects of heat and cold which should always be borne in mind in practice.

The instances on record in which hot-baths have done harm are numerous. I knew of one case in this city some years ago of an old gentleman who took, according to his own notion, a hot-bath. It gave him apoplexy at once; of which he died, as nearly as I recollect, in two or three days. He had had two attacks of the kind before. Dr. Bell, of Philadelphia, in his excellent remarks on baths, informs us that Fourcroy relates the case of an individual who, being immersed in a bath of one hundred and eighty degrees Fahr., fell down apoplectic.

tic one hour after. "Buchan," observes Dr. Bell, "acquaints us with the history of a patient who was seized with paralysis from having used a bath excessively hot. Peter Frank mentions the development of an inflammatory fever, followed by the appearance of fourteen abscesses, after the application of such a bath. Venel saw at Balaruc a sick person sink into a state of fatal debility by remaining too long in a hot-bath, and the same author tells us that at Couterets a Spaniard died of hemorrhage from the same cause." In addition to these, Dr. Currie, and others of high authority, might be quoted.

The great difference between a hot and a cold bath would be strikingly apparent if we should undertake to treat cases of suspended animation, sun-stroke, insensibility, poisoning, stroke by lightning, etc., by hot instead of cold water. If we use the latter, there is a chance of rousing to action the dormant vital powers; but if the former, we only increase the difficulty, and aid by the heat in bringing on mortification and death of the viscera, which were already too much engorged with blood.

#### SEA-BATHING.

As regards temperature, sea-bathing comes under the general head of cold-baths. Sea water, however, at those seasons of the year when sea-bathing is resorted to, is of but a moderate degree of coldness, varying in this latitude not much from seventy degrees Fahr.

In order to appreciate fully the effects of sea-bathing upon the system, a number of things are to be considered.

Sea water differs in its effects from common water by its possessing greater density. This circumstance, however, is not of so great importance as that of the stimulating nature of the mineral it contains. The saline ingredient is a powerful stimulant and even irritant of the skin. On account of this property, it is found that an exposure to the action of salt water is not so liable to cause ill effects as that to fresh. The salt causing a degree of heat upon the surface somewhat higher than that of the natural state, the system is for the time shielded from the action of cold. It does not follow from this, however, that a person could live longer immersed in sea than in common water any more than it follows that because alcohol for a time increases the animal temperature, life can, under circumstances of great exposure to cold, be the longer preserved. This it is now well known is not the case.

In sea-bathing, some portion of the saline matter of the water is necessarily absorbed into the system, which must there produce its good or bad effects. Now, as I am a disbeliever in the use of salt, I should myself always prefer to have the water fresh; and I am fully of the

opinion that fresh-water bathing, under favorable circumstances, such as at Mackinaw, where there is, as I am informed, a pure air and fine beach, would be found productive of still more favorable results than are usually obtained at the sea-side.

But that a visit to the sea-shore in the summer season is often the source of great benefit to the health I am fully aware. Nor would I willingly discourage the practice of sea-bathing, but, on the contrary, I would recommend it for what it is actually worth.

One advantage of going to the sea-shore in preference to any other part is, that we are not, as a general thing, subjected to any thing like marsh miasmata at such a place. Sea marshes, it is well known, do not send forth emanations of a malarious character, although it is possible, at some points along the sea, to contract ague; but this is owing in all cases, I am confident, to a considerable amount of spring water rising out of the earth, at or near the shore, and which, having little or no fall, do, in fact, cause a sort of fresh-water marsh, in which the bad air is generated. This I know to be the fact at some points of Long Island where intermittents prevail at times. In all of these places it is easy to account for the appearance of ague in the way I have indicated...

Another advantage of sea-bathing in the hot season is, that the air at the sea-shore is cooler than on land. That our climate in summer is too hot for the most favorable development of health is proved by the great increase of mortality, not only in our cities, but in other parts, during the hot season. The European cities, with all their numbers of inhabitants, dampness, narrow streets, intemperance, pauperism, etc., would naturally be expected to show a higher range of mortality than our American cities, but such is not the fact. Even New York, with all its natural advantages, is as sickly, probably, as any of the British or European cities. This, it is agreed on all hands, must be owing in great part to the great heat of our summer months.

The manner of taking the salt-water bath has some peculiarities which are favorable to health. It is, in the first place, in the open air, which, if the weather is favorable, that is, neither too hot nor cold, is always a great advantage. Other things being equal, a bath in the open air is always attended with a better reaction and a greater degree of invigoration than one within doors.

In the second place, sea-bathing is usually and almost necessarily connected with exercise both before and after the bath, circumstances which are always highly favorable to the action of cold water. So beneficial, indeed, is exercise taken in this way, that it would be difficult to determine which of the two—the exercise or the bathing—is the



more beneficial. In connection, the two act reciprocally upon each other, each rendering the other doubly beneficial.

It need hardly be remarked that the same general rules apply to sea as to other cold bathing. Properly managed, it can be made to agree with all persons and constitutions. The greatest mistake in regard to it as generally practiced is, that of remaining in the water too long at a time. People generally go more by their sensations as experienced at the time of the bath, than from any clear idea as to the why and wherefore of what they do. If this rule is followed, those who are weak and nervous need not be surprised if they feel a languor and depression after the bath, attended, perhaps, also with a sense of fullness and oppression in the head, which is sufficient to make them miserable for the greater part of the remaining portion of the day. In some cases it will be found necessary to immerse only a portion of the body at a number of the first times of going into the water. Even weeks may be required to thus harden the system by degrees, before a full immersion should be ventured upon.

#### INJECTIONS.

The term *injection* implies the act of throwing a fluid into some cavity of the body.

In Water-Cure we inject water more frequently into the bowels than any other cavity. This kind of injection is also called *enema*, or *clyster*.

The enema, which is one of the most useful parts of water treatment, is as old as the healing art; but in the endless complications of the remedial means of modern times, almost any poisonous, irritating, or disgusting fluid other than pure soft water has been preferred. In general, too, the enema has been made a means of more harm than good to the constitution, although life has been saved now and then, doubtless by the use of some medicated clyster.

Most people have so little confidence in simple water, that if a clyster is administered to them, they have no idea that it can operate in so effectual a way as it usually does. Years ago, when the water treatment was much less known than at the present time, I have been suspected of having secretly put some cathartic substance in the water, "for," said the patients, "how is it possible for *water* to act in this way?" Nor is it strange if even a genuine hydropath is sometimes suspected of imposition, seeing how much the world has been deceived by villains on the healing art.

A great variety of injection-instruments have been invented. Some of these are very convenient and useful; others are got up on mere speculation, and are but little worth. Every family, at least, ought to

have a good force-pump injection-instrument if they can obtain such a one. A lady's toilet is never complete without it. A good article is either manufactured or sold by most surgical-instrument makers, and druggists often have a good article. *But beware of imposition.* It is better to get along with a common bladder and goose-quill, as we may in an emergency, than to pay for a good-for-nothing syringe. A good force-pump syringe costs usually about three dollars.

It is by no means so difficult a matter to take an injection as many suppose. A person of some skill can usually apply the remedy alone. It is in no wise a painful operation in most cases, but is agreeable rather than otherwise. It is well to be careful in administering this remedy, because it is possible to do a mechanical violence to the parts. It is said dreadful lacerations have been caused in this way; but I have never known any such case. Especially in treating infants should we be careful in giving injections. If there is any doubt as to temperature the tepid form of the application may be used

#### MODUS OPERANDI OF WATER.

It is often objected to hydropathy that water, being but one agent can not be made useful in all diseases. I propose here to make some remarks on *the modus operandi of water*, in which I shall endeavor to explain, not only to the scientific scholar, but to the ordinary reader, that water is capable of being made available as a remedy—and that powerfully too—in a great variety of ways. It then acts:

1. *By its Presence.*—Water, as we have seen elsewhere, composes the larger part of the living body; and that without its presence in a large proportion in the living system, the vital processes can not for a moment go on.

2. *By its Coldness.*—Cold, within proper limits, preserves and augments life, while heat tends to debility and decay. In proportion as the animal heat is diminished in the different classes of animals, the less is the want of air felt. If in a puppy the eighth pair of nerves be divided, producing a closure of the glottis so that no air can enter its lungs, the animal dies in half an hour, if kept at an ordinary temperature. But if the animal is benumbed with cold it survives the operation for a whole day. Frogs, in the summer, when the temperature of water is elevated, are obliged to come often to the surface for air. But in winter, when the water is colder, they live almost entirely under its surface. A cholera patient in collapse, a person who has been stifled by foul gases, one in the sinking stage of a fever, or fainting from the loss of blood, or in any way asphyxiated, desires always coldness rather than heat. It may not be possible in the present

state of science to explain these phenomena; but undeniably we have the facts.

3. *By Endosmose and Exosmose.*—Animal membranes have the power of *absorbing* liquids—called *endosmose*, or *imbibition*, and of throwing them out, *exosmose*, or *transudation*.

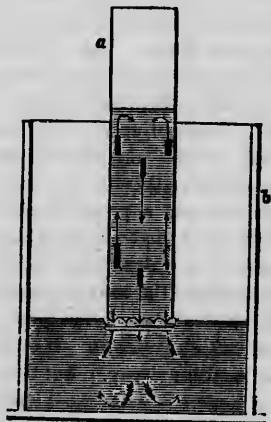
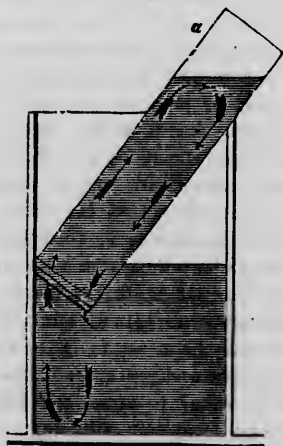
If we take a portion of the intestine of a chicken, tie one end, nearly fill it with milk, then tie the other end, and lastly immerse it in a tumbler or other vessel of pure water, we find that in a short time the milk passes out of the intestine into the water, and the water inwardly mingling with the milk. This process goes on till the fluid within and without the intestine becomes one and the same. This is a familiar illustration of the principle in question.

Another illustration is this: Pure water is placed in a common tumbler, or a glass tube an inch or two in diameter, as *b* in fig. 244. A smaller tube, say half an inch in diameter, as *a* in the cut, has one of its ends closed tightly with a piece of bladder, and is nearly filled with brine. The bladder end of this tube is then immersed, at an angle of about forty-five degrees, in the water of a larger tube or tumbler. In a short time the interchange of liquids commence, following the direction of the arrows as seen in the cut, and this interchange continues until the liquid in both tubes becomes the same.

Still another illustration is this: If the small tube containing the brine be supported vertically, as in fig. 245, and its bladder end im-

Fig. 244.

Fig. 245.



mersed a little below the surface, the currents will take a different direction from that of the former experiment, as may be seen in the figure. The same results, however, take place in both cases. In both experiments, if the water of the larger tube or vessel be replenished a sufficient number of times, the saline and other foreign matters in the small tube will all be removed. The same thing also would take place in the experiment with the milk. It would all be removed from the receptacle in which it was placed.

Now, in applying this principle to the living body, Dr. Edward Johnson and some others have committed a great error. It should always be remembered that a *living* and a *dead* animal membrane are two very different things. The one is possessed of that vital principle of which we know so little; the other is merely an inert substance which passes readily into decay.

Their argument is this: When pure water is held in contact with the external surface of the skin of the body by means of the wet sheet, or any other means, the same conditions are established with regard to the fluids within the body and the water which is in contact with its outer surface as are established between the pure water and the brine in the experiments. The fluid within the body, in other words, the blood, is about ninety per cent. water, and contains in solution or mixture whatever poisonous or morbid matters may have found their way into the system. This is, no doubt, to a considerable extent true, although some of the poisons, such as mercury, fix themselves in the harder parts of the animal structure, such as the bones. At the same time a portion of poison also floats about the system mingled with the blood and other fluids. But if the body is to be compared to a dead mass, who does not at a glance perceive that the water processes would abstract from the blood and other fluids the *good* matter as well as the bad? Thus after following water a short time, the blood and fluids would become only water, and the patient a dropsical mass! But this, fortunately, does *not* happen, and for the reason that the living body contains a principle of *vitality*, which always tends to retain *within* itself that which is friendly to life, and at the same time to remove *from* itself that which is unfriendly. It is this principle which causes the body to maintain the same temperature in all climates and seasons; causes the blood to circulate and the heart to beat; in short, which generates all of the vital processes and preserves it constantly from decay. But I admit that the water processes *aid* the vital powers by endosmose and exosmose to rid the system of its impurities, and that, too, in a most powerful manner, a fact which experience abundantly proves. I make these strictures kindly, and because Water-

Cure, which is really a scientific treatment, should not, in any of its parts, be left so at loose ends, as to be at the mercy of the merest tyro of the allopathic school. Nor will I be misunderstood, I trust, when I affirm that transudation and exudation constitute one of the fundamental principles of hydropathy, although not in the sense which some have supposed.

4. *By Dilution.*—Water is the greatest diluent in nature. There is no substance which is at all comparable to it for penetrating the myriads upon myriads of capillaries that exist in all parts of the living structure. When the fluids become thick, viscid, and filled with impure matters, as is usually the case to a greater or less extent, in disease, it is an important object to dilute these matters. For this purpose water is the only available remedy.

5. *By its Tonic Effect.*—It is admitted that among all the forms of the so-called drug tonics and tonic mixtures, there is not one which does not in the end become a *debilitant*. The reason of this is plain; drugs are in their very nature unfriendly to life. A drug is intrinsically an enemy to the system; otherwise it would be food, or a friendly article. But water is of an opposite nature; it is the greatest of all tonics, and possesses the valuable property, not of wearing out as do drug tonics, but of increasing in its good effects.

6. *By its Excitant or Electrical Power.*—A man feels dull and stupid from excessive bodily or mental labor, from excessive alimentation or spirit, or tea and coffee drinking, with the blood all crowding up into his head. We apply the well-wrung rubbing wet sheet one, two, or three times to his surface, accordingly as he may need, and he at once perceives a most wonderful change for the better. Or a man feels of a morning dull and stupid, with his muscles sore; he has the rubbing wet sheet, the plunge, shower, or douche, and instantly his troubles banish. Or he may have a lumbar abscess which has run him down so low that when he wakes in the morning he finds he can not walk. Two or three gallons of cold water are poured over him, upon which he walks readily. Now these effects of water, remarkable as they are, arise simply from its excitant or electrical power.

7. *By its Temperature.*—In acute disease, in all fevers and inflammations, of whatever name or grade, the great power of water to regulate the temperature of the body is one of the most striking of all the phenomena cognizable by man. Bleeding, blistering, scarifying, cupping, and purging—neither one nor all of these possess one hundredth part of the power of water to regulate the temperature of the body in disease. By the use of cold water we can always vary the heat of the body and the velocity of the heart's action to any desirable extent.

8. *By Purifying the Blood.*—Water accomplishes one thing which no drug, no other substance in nature can. *It purifies the blood.* It does this because it penetrates every lane and alley of the system, however minute. No capillary is so delicate that it does not penetrate its smallest possible part. It purifies the blood, because as long as the vital principle lasts, the tendency of nature is to preserve the vital fluid in a healthy state; and penetrating every tissue of the body as water does, it assists nature in the purifying process as no other substance can.

9. *By Augmenting the Vital Force.*—No fact in science is better established than that water possesses the power of actually increasing the amount of vitality in the system. This is, in fact, the prime effect of water. It aids the system in throwing off disease in the same way that increasing a merchant's capital aids him in throwing off debt.

The foregoing propositions are submitted as elucidating some of the leading principles concerned in the action of water upon the living body. I do not claim, however, that the whole of the philosophy of the effects of water is yet understood by any one. Doubtless those who know most about it have yet much to learn.

#### RULES FOR USING WATER.

*The Time of Day.*—In general, the more powerful applications should be made in the early part of the day. At this time the calorific powers and the circulation are more vigorous, and, consequently, the body more able to resist powerful applications of whatever kind.

*The Meals.*—Ordinarily, no powerful bath should be taken within three to four hours after a meal. A full stomach and cold water do not at all agree. But in certain diseased conditions, as feverishness, inflammation, colic, cramp in the stomach, cholera morbus, and other sudden attacks, water appliances are to be commenced without reference to hours or meals. The symptoms then are our only guide.

*The Lighter Baths.*—If there is doubt as to which application to make, the well-wrung rubbing wet sheet, the tepid shallow-bath, or a warm-bath should first be taken.

*Reaction.*—Within a reasonable time after a bath, the body in all its parts should become naturally warm. If the feet and hands remain cold, and the nails and lips blue, the bath has, to say the least, done no good. In some cases of fevers and other inflammatory diseases, it is better to keep the body chilly than to allow it to become too warm.

*Ulceration.*—If any part of the body, as the extremities, lungs, bowels, etc., is undergoing any considerable ulceration, very cold baths are inadmissible.

*Nervousness.*—With some persons who are highly nervous, and par-

ticularly with nervous females, much cold bathing, although it appears to agree well, and to be the best for a time, is in the end harmful, rendering the nervousness and general debility worse.

*Exercise.*—For the douche, plunge, cold sitz, and foot baths, and all others that abstract a large amount of caloric from the system, the body should be fully warm, and the circulation somewhat accelerated by exercise. Exercise should also be taken AFTER the bath, until the heat and circulation are fully restored. But if exercise is impracticable either before or after the bath, friction should be made to take its place.

*Increased Heat.*—Elevation of temperature constitutes no objection to bathing, provided the body is not excessively fatigued. The reason why overheated persons sometimes lose their lives by plunging into or drinking largely of cold water is, that the vital force has been too much exhausted. Mere heat is an advantage.

*Perspiration.*—Neither does this constitute an objection to bathing or water-drinking, if the foregoing rules are observed.

*The Air.*—Bathing in the open air is always preferable to in-doors, provided the extremes of heat and cold are avoided.

*The Head.*—It is well always to wet the head with cold water, both before and after a bath. Douches and the shower should never be taken on this part. Simple pouring or affusion is the only mechanical force of water that should be allowed on the head.

*Pregnancy.*—This, as abundant experience proves, forms no objection to bathing, or any form of properly regulated water treatment. Cold bathing and water drinking are of the greatest service during this period.

*Menstruation.*—Not only is bathing safe at the monthly periods, but is of remarkable advantage, as thousands in this country can already testify. A course of water treatment sometimes arrests the menstrual functions for several months, or even a whole year, or more, the patient, at the same time, gradually recovering her accustomed health and strength.

*The Season.*—If the lungs are not extensively diseased, and if there is no considerable ulceration going on in any part of the system, the cool and cold seasons are preferable for a course of bathing. With right management, a patient gains two or three times as much in a given time during the cold months as he does in the hot.

*Days of Rest.*—One day in seven water treatment should be discontinued, with the exception of a simple ablution in the morning. Six days' treatment in the week is worth more than seven, because it is a law of nature that, if a remedy is continued steadily and without

change, it loses much of its good effect. This is as true of water as of any other agent. Those who do wisely will omit the treatment on Sunday, whatever their religious convictions may be.

*Friction.*—One of the most common errors in regard to bathing is the notion that the skin should be rubbed a good deal—rasped off, so to say—and the more the better. Hence the use of very coarse towels, flesh-brushes, hair mittens, straps, etc. I do not deny that filthy, seldom-washed, gross livers had better have their skins “curried off” now and then; but one who bathes daily, as all persons should, and especially a water patient, who bathes repeatedly every day, ought to be careful to preserve the skin as much as possible. This was the doctrine of Priessnitz, and the true one. Practice the rubbing with the wet hand, or *over* a dry or wet sheet, as the case may be, and not *with* it. Thus the cuticle will be preserved; but if we keep rasping it off continually, as too many do, we give nature an unnecessary task to perform in replacing it. I repeat, IN THE WATER PRACTICE, PRESERVE THE SKIN IN AS SOFT AND NATURAL A STATE AS POSSIBLE. It is good to scrape off the old bark from a tree now and then, but who in his senses would think of doing it constantly?

With these precautions respecting friction, a patient can scarcely have too much of it, particularly in those cases where the skin is bloodless and inactive.

*Internal Uses of Water.*—The same general rules apply here as in the external applications. *Thirst* should for the most part be gratified whenever it is experienced. As a rule, the less water drank at meals the better. For the *tonic* effect, it is to be taken while the stomach is empty, and it is better that exercise should accompany it. From six to twelve tumblers per diem is a fair allowance for average patients.

*Quality of Water.*—For all remedial as well as hygienic purposes water should be as pure and soft as can be obtained. With proper care and ingenuity in the construction of cisterns, filters, etc., this desirable end can be everywhere accomplished. Lead and lead pipes should be avoided, except where the water runs freely and constantly. In cities the service pipes should be allowed to run some little time in the morning before water is used.

*The Sweating Process.*—Formerly it was much in vogue to sweat patients in the blanket pack, but latterly the practice has quite gone into disrepute. It is a method of *reducing* the system, and for this reason deserves to be classed with bleeding, cathartics, etc. For several years of the later part of Priessnitz's career he was very averse to using the process. It was a remark of his, that the cures by sweating were not permanent.



## WET BANDAGES AND COMPRESSES, ETC.

These, as we have already seen under the head of wounds and injuries, are of great value in water treatment. They are used of any desirable size, upon any part of the body, and produce different effects accordingly as they are used. *Cooling* wet compresses are such as are changed or rewet frequently, and for the most are left uncovered. The *warming* or *stimulating* are covered and left upon the part until it becomes as warm or warmer than natural. *Warm* fomentations are useful in certain cases, but the *hot* should, as a rule, be discarded.

The *wet girdle* is one of the most useful of all medical appliances. Two and a half or three yards of good toweling, with tapes arranged at one end, the corners of which have been turned over and sewed so

Fig. 246.



THE WET GIRDLE.

as to form a point (see fig. 246), forms a good girdle. It should pass usually three times about the body, one half having been wet. This brings two thicknesses of wet on the abdomen and one upon the back. At Graefenberg this application was worn by every patient, and, as a rule, all of the time. It is useful in a great variety of ailments, both acute and chronic. The same *form* of application is also useful for the arms, legs, etc., the tapes being used in preference to pins.

The *wet jacket*, or *chest wrapper*, is also a valuable resort in diseases of the chest. Oiled silk and other similar articles, as I have elsewhere observed, are not to be used upon these local applications.

## CRISIS.

In remarking upon this subject, I shall repeat some things which I have before said in the "Water-Cure Manual."

A crisis may be said to be a visible effort on the part of nature, or the natural powers of the system, to rid it of some morbid matter or matters in it, or expelling them at some of the natural outlets of the system, as the skin, bowels, and kidneys. These appearances occur in the form of boils, eruptions, sweatings, diarrhea, mucous and bloody discharges, high-colored urine, feverishness, and the like.

That these symptoms are frequently caused by water, has often been

observed. When sailors first go to sea, and are considerably exposed to wet, it is common for boils to make their appearance. This is particularly true in those parts of the world where there is much rain, causing more than ordinary exposure to moisture, as, for instance, in doubling the Cape of Good Hope. Sailors are there much exposed, and it has been observed that they are here very subject to boils. Fishermen, in like manner, are very often affected, especially upon those parts most exposed to the water, as the hands. Boils upon boys that resort frequently in the summer to the water, for swimming exercises, every one must have observed. Children accustomed to warmth and the so-called comforts of home, when sent away to school, where exposure to cold and a rigorous diet is enjoined, have been known to be affected in the same way. In animals, also, eruptions and changes upon the skin have been seen to take place, when they were first exposed to wet.

The true philosophy of these apparent aggravations of disease is probably this: as the living power, or that which we call nature, becomes invigorated, a greater antagonism against disease is set up; the disease then makes a more desperate effort to remain; and in the commotion thus caused there appears to be an increase of the same.

As crisis is an evidence that nature has set vigorously about doing her work, we should, when this appears, pursue only a very mild course. The treatment should now be expectant or watching. Manage to soothe the system, and, as well as may be, keep down the irritation. Nature is now doing her work well. Do not thwart her by undue interference. Let her go on. If she falters by the way, and fails of accomplishing her work, it is easy again to increase the treatment, and again to bring on crisis. I am certain there has often been too great an amount of treatment practiced while patients are in crisis.

It will be remembered that even in the best cases of cure, there are some who have no visible crisis.

#### AIR AND EXERCISE.

These are important adjuncts in the water treatment. With regard to the first, we have only to look at the vast difference between the mortality of cities and healthy country localities, to be convinced of the superiority of pure air over that which is foul. Living in the confined air of a large city may well be compared to a sojourn in a great prison-house, and in which we are compelled to breathe, even under the most favorable circumstances, twenty thousand times a day and upward, more or less of pestiferous filth. We know, it is true,

that Water-Cure is preferable to drug treatment *under any circumstances*, but the hydropathic doctrine is, *always the purer the air the better*. With regard to air and exercise generally, there are multitudes in every country who might learn wisdom from a simple story. A man in Paris, who had acquired a great reputation for curing the diseases of lap-dogs by some means which he kept a secret, but which being afterward divulged were found to consist in his placing all the animals intrusted to his care in a large open space, giving them to eat only plain meat and bread, and water for drink, of which the pampered creatures at first refused to partake, till their appetites were sharpened by the exercise which he obliged them to take by going in several times in the day with a horsewhip, the dread of which was sufficient to induce them to scamper about in a manner to which they had been previously but little accustomed. By means of this regimen they were generally returned to their fond mistresses sleek and healthy, at the expiration of two or three weeks.

It will be a great improvement in hydropathic establishments when there shall be conveniences for manual labor. Nothing pleases the mind more than the consciousness of having done daily something useful, and nothing is better calculated to *kill* time. A man does not weary of horticulture, agriculture, and the like useful employments, but mere walking about from day to day for exercise becomes a perfect drudge. I would not, however, wish it to be understood that I place too low an estimate on this natural mode of employing the muscles, but would only have it stand in its proper light.

The *science of gymnastics* is an intricate one, but at the same time a means of great value in physical development and the cure of chronic disease. I can not, however, in the present work, enter into an extended explanation of the processes of this art, but shall content myself in presenting the reader with a set of interesting illustrations by Dr. R. T. Trall, of this city.

*Action 1.*—(Fig. 247.) The feet being placed close, the hands fixed on the hips, rise on the toes, then bend the knees, and lower the body gradually till the thighs touch the heels; extend the arms in front, and fall forward, so that the body forms a straight line from the head to the heels, and rests on the hands and toes. These motions call into powerful action nearly three hundred muscles; those of the upper and lower extremities, chest, spine, and abdomen.

*Action 2* (fig. 248) is performed by two persons sitting down who face each other, the soles of the feet touching, then grasping a stick and pulling against each other, first with knees straight, secondly bent, and thirdly with the legs open. The principal force is exerted by the muscles of the arm, and those about the knee joint.

Fig. 247.

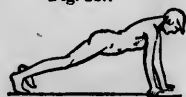


Fig. 248.

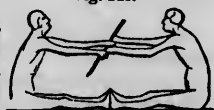


Fig. 249.



Fig. 250.



*Action 8* (fig. 249) is intended to exert mainly the muscles of the lower extremities alone. The feet being placed close, the hands open, the arms straight upward, the palms in front, bend the body forward, and touch the ground with the points of the fingers. The knees are to be kept straight.

*Action 4* (fig. 250) throws the whole effort on the muscles of one of the lower extremities. The feet close, the arms extended in front, raise the left leg in front, bend the right knee gradually and sit down on the ground, then get up again in the same position.

Fig. 251.



Fig. 252.



Fig. 253.



Fig. 254.



*Action 5* (fig. 251) acts particularly on the muscles of the toes, ankle joints, and hips. The feet close, the hands on the hips, cross the legs, bend the knees gradually, sit down and rise again.

*Action 6* (fig. 252) exerts powerfully all the muscles of the leg and hip. Lift the left foot behind, bend the right knee, lower the body gradually, touch the ground with the left knee, and rise again.

*Action 7* (fig. 253) throws nearly the whole effort upon the muscles of the wrist. Draw up the body as high as possible, and with a spring, elevate both elbows at once, if possible, or one at a time; then rise gradually, the whole of the body being on one side of the pole; change the position of the hands, and come gradually over the pole till the feet touch the ground.

*Action 8* (fig. 254) brings the principal effort on the elbow and shoulder of each arm alternately. Rise up as in the preceding case, and try to keep up the body by the right arm only, and then with the left.

Fig. 255.



Fig. 256.



Fig. 257.



Fig. 258.



*Action 9* (fig. 255) exercises the pectoral muscles with those around the shoulder joint. Grasp the left hand with the right, bring the arms behind the head, and move them from one side to the other.

*Action 10* (fig. 256) is calculated to give great power and flexibility to the muscles of the legs and feet. The feet close, the hands on the hips, jump up and spread out the legs, and close them alternately.

*Action 11* (fig. 257) mainly exerts the muscles of the toes and legs. The hands are placed on the hips, the right foot in front, the toe pointing downward; spring or jump twice on the right toe, and twice on the left, alternately, the knees being kept straight.

**Action 12** (fig. 259) is intended to act powerfully on the muscles of the leg and instep. Place the hands on the hips, the left leg in front, toe toward the ground; then jump forward on the right toe, both legs being kept quite straight.

Fig. 259.

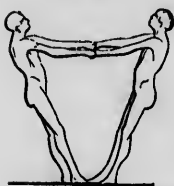


Fig. 260.

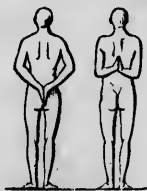


Fig. 261.



Fig. 262.



**Action 13** (Fig. 259) exercises the muscles of the upper extremities, small of the back, and feet. Hook each other's hands, the toes opposite; then lean back and go round quickly.

**Action 14** (fig. 260) brings into play the muscles of the chest, shoulders, and upper portion of the back. Let the palms of the hands touch behind, fingers pointing downward; turn the fingers inward and bring the hands as high as possible up the back, taking care to keep the palms of the hands close together.

**Action 15**.—(Fig. 261.) The elbows are to be drawn back so that the fists may be close to the sides; then throw the arms straight forward, and then back as before. When this action becomes easy and familiar, the succeeding ones are very easily acquired.

**Action 16** (fig. 262) brings the principal effect on the muscles of the elbows and shoulders. Rise up as high as possible and throw the arms over the pole, holding firmly by them.

Fig. 263.

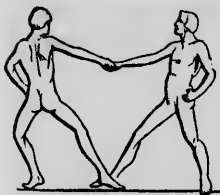
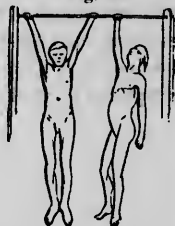


Fig. 264.



Fig. 265.



**Action 17** (fig. 263) is performed by two persons facing each other, so as to act upon the muscles of the upper and lower extremities simultaneously. The left hand on the hip, the right foot in front, lock the middle finger in each other's right hand, and pull backward.

**Action 18**.—(Fig. 264.) Bring the arms up quickly in front, as high as the shoulders, nails turned upward; then swing them forcibly backward, at the same time turning the nails backward, keeping the body perfectly upright.

**Action 19** (fig. 265) strongly exerts the muscles of the wrist and shoulder. Hang from the pole by one hand; first by the right, then by the left, several times alternately.

**Action 20** (fig. 266) is a circular motion of the arms, striking the wrists and palms together, as the hands pass in front. It is one of the very best methods of enlarging the capacity of the air cells of the lungs, by bringing the principal action upon the diaphragm and pectoral muscles. These exercises may be improved upon, by inflating the lungs with a full inspiration, and then

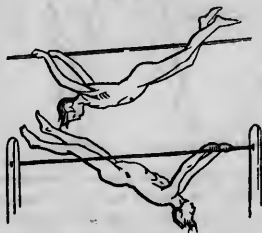


holding the breath while half a dozen circular motions are made as rapidly as possible. And the best time to practice these gymnastics forcibly, is just after the morning bath, while the body is but partially dressed. All sedentary persons, and all the pent-up denizens of cities, who do not enjoy the benefit of a walk before breakfast in the open air, can find an excellent substitute in these muscular exercises.

Fig. 267



Fig. 268.



*Action 21* (fig. 267) calls the muscles of the wrists, arms, and shoulders into strong contraction. First throw the right leg over the pole; then with a spring bring up the right elbow; lastly, by another spring, bring up both arms straight, so as to sit across the pole.

*Actions 22 and 23* (fig. 268) are methods for putting the muscles of the arms and chest to the utmost tension. The gymnast swings, and jumps as he swings back, and comes down on the pole.

I close what I have to say on the subject of exercise, by remarking that there are thousands upon thousands of invalids in this and every civilized country, who need only some daily, continuous, bodily employment to cure them of their grievous ails. What a blessing would it be to such if they could, by loss of property or some other means, be *compelled* to work!

## CHAPTER XXVI.

### OF THE HUNGER-CURE.

I SHALL in the present chapter give an account of the Hunger-Cure, as practiced by JOHN SCHROTT, of Lindewiesse, near Graefenberg, in Germany. The method is sanctioned by the Austrian government, and is under the same police surveillance that was placed over the Water-Cure, as practiced by Priessnitz. I shall first give Schrotts' own views, which are erroneous in some important particulars, and afterward add such remarks as the premises demand. Some general remarks on diet will also be made.

Schrott claims to have commenced his experiments in 1817, under the following circumstances: His horse had his leg broken; the part became swelled, the knee stiff, and healing at a stand. A traveling monk (it is in a Catholic country) advised him to wash it often daily with cold water, and, at the same time, to prick the wounded part with a sharp piece of wood, so as to make small punctures in it. Instead, however, of following the monk's advice, he wound wet cloths about the affected part, covered them with dry ones, and renewed the applications sufficiently often to prevent their becoming dry. This treatment worked admirably; the swelling went down gradually, and in ten weeks the limb was healed perfectly. After this Schrott began to treat cases of wounds in both men and animals. After experimenting a while upon the body externally, he came to the determination of trying his principle in diseases of the internal parts of the system. He tells us he was very soon convinced of the good effects of the method. Schrott claims that he was before Priessnitz in the use of the wet girdle, body bandage, or *umschlag*, as it is there called—a very important part of the water treatment. Of the truth of this assertion I am not able to affirm; I only give Schrott's authority for what it may be worth.

Schrott is to be regarded as rather fanciful in some of his reasonings. He says that warmth and moisture are necessary to cause the seed to grow in the ground, and that too much of either is bad. The child in the mother's womb, he observes, is surrounded by moist

warmth. Those conditions—moisture and warmth—are necessary in all the processes of animal and vegetable growth.

In order to loosen morbid matter from the body in disease, he at length came to wrap the whole body in wet sheets, placing the patient in bed for many hours, so that he should be exposed to the action of warmth and moisture.

*Diet.*—In regard to the subject of diet, Schrott observed that animals take little or no food, and drink but little when they are sick; that they seek a warm and quiet place naturally, and thus get well. Hence arose his notion concerning spare diet. His horse, he said, when he drank less sweat less, and was more hardy and enduring. In England the horsemen feed their animals on dry food, and give them only a moderate quantity of drink. Schrott claims from these facts, as he supposed them to be, to have experimented upon himself, and that he found the experiment a good one. In healing of the wounds of flesh, and in broken bones, he ascertained that the healing went on more favorably under the use of very spare diet and little drink. It may here be observed, that in the use of spare diet, or in a course of fasting or abstinence, but little thirst is experienced. But Schrott, like the world generally, got a wrong notion about the use of wine. He regarded it as a tonic or strengthener of the body, and this he says it is in its efforts to expel morbid matter from the domain of life. Hence he uses wine to a moderate extent in his practice.

*Views of the First Causes of Disease.*—Schrott holds that most chronic diseases originate in bad secretions of the body, and that unhealthy food is one of the prominent among all causes of deranged health. Scrofula, rheumatism, etc., he holds are all caused by morbid matter being accumulated or made fast in local places.

The object of his method he states to be the purification of the blood and all other fluids of the system.

The removal of the morbid matter takes place, according to Schrott, in the following ways: 1. through the expectoration; 2. the renal secretions; 3. the fecal discharges; 4. the insensible perspiration.

The means Schrott uses for the healing of diseases, or, as he prefers to express it, the means he resorts to for the aid or support of nature in her efforts to throw off morbid matter, are: 1. partial bandages; 2. body bandages; 3. envelopment in wet sheets; 4. a peculiar diet.

*The Partial Bandages.*—These are formed of linen cloth, shaped into sizes suited to the nature of the case. Usually three or four thicknesses, more or less, according to the disease, heat, etc., are wet in cold spring water, and laid upon or wound round the affected region or part. He always covers the wet applications with dry ones. They



should be rewet often enough to prevent their becoming dry ; but they are allowed to remain upon the part longer without changing than is usually done in the water treatment.

Usually these applications are made directly upon or over the part diseased ; but in some cases, as in fevers, they are applied to the feet or limbs, with a view of drawing off the morbid matter, or of producing a derivative effect toward these places.

*Body Bandages.*—These consist of three, four, or more thicknesses of linen cloth, wet in cold spring water, and placed between the armpits and the hips. As in the water treatment, these are wound as tightly about the body as may be without causing any impediment to respiration. Here, as in the smaller applications, dry are put over the wet. The body bandages are usually kept on fully eight hours at a time, the patient lying, well covered to the neck, in bed all the while—a process which, to those who are fond of exercise, must prove a rather tedious one. If the patient sweat he is rubbed off with dry towels simply, but never bathed as in Priessnitz's treatment. After this *half pack*, as it is very appropriately styled, he goes out, waiting, however, for half an hour first. Schrott directs that the room be kept at fifteen degrees Reaumur, or about sixty-six degrees Fahrenheit.

*Wet Sheets.*—From two to five of these are used at a time. A very large, heavy woolen blanket (two or three lighter ones would answer fully as well) and a feather bed to insure warmth. The first sheet is applied in such a way as to come up to the armpits only. The rest are made to envelop the whole body up to the neck, the same as those ordinarily used by Priessnitz. Schrott says he has been accused of sweating his patients in these sheets, but he denies that such is the fact.

It is a rule with Schrott that no water is to be drank while the patient is in the wet envelopments, nor for a time after it. The mouth may be rinsed out from time to time with that which is lukewarm.

He considers it of importance that there be no soap used in washing the sheets, since, in such cases, he says, itching is apt to be caused. This is, of course, on the supposition that some part of the article is left in the texture of the cloth after washing.

*Diet.*—This Schrott regards a most important part of the cure, and without which all the other parts of his method would be comparatively useless.

*Division.*—Schrott makes three divisions in his method, which are 1. the fore-cure or light-cure ; 2. the strong-cure ; and 3 the after cure.

*Treatment of Chronic Disease—the Fore-Cure.*—1. This is used, for the most part, in cases of those who are either morally or physically too weak to enter at once upon the strong-cure.

In this preparatory process the patient has either the body bandages or the sheets once in the twenty-four hours.

2. He is permitted to drink only once during the day, and then very little, the fourth or fifth hour after dinner. At this time he gives a small or half glass of weak, sour wine. This is the character of that which is used in those parts. The wine is taken, little at a time, and never all at once. Sometimes it is allowed as soon as two hours after the mid-day meal, but generally not until four or five hours have elapsed. If a person can not take the wine of its ordinary strength, he allows it to be reduced with an equal quantity of water. In some cases he allows water altogether, and which would, without doubt, be better in all cases.

3. *Breakfast.*—This consists of wheat coffee, one glass, and one *semmel*—a superfine biscuit, weighing, I should judge, about two ounces—dry and stale.

*Dinner.*—At noon a small quantity of lean, tender beef, with or without vegetables, such as potatoes, yellow turnips, and rice, is allowed. A thick water soup is also sometimes taken. It is usually made of buck-wheat. A very little good and fresh butter is not objected to by Schrott.

*Supper.*—The third and last meal is a very spare one. The patient takes only a little dry, stale bread, or a small portion of pap made of rice, etc.

If the above diet, taken through the day, does not satisfy the appetite, the patient is allowed to eat, from time to time, portions of dry, stale bread. Taking as little fluid as he does, the appetite is generally easily satisfied.

The length of time of the fore-cure is graduated according to the patient's strength, moral courage, and other circumstances of the case. Two, three, or more weeks are employed in this way.

In some cases the fore-cure is all that is needed to restore the patient to health; but in the majority of instances it is necessary to resort to the stronger method. Many who have good resolution go at first, or at furthest very soon, to the strong-cure. In such cases a great amount of benefit is derived in a very short time, especially with those who have been free livers, are florid in appearance, and have what Schrott very appropriately calls *false health*.

*The Strong-Cure.*—This part of the hunger method, Schrott maintains, more than rewards the patient for the greatest perseverance and self-denial in following out the course laid down. It consists:

1. In the entire envelopments in wet sheets, alternating with the body bandages; 2. in a very spare dry-bread diet; 3. in periodical abstinence from all drinks.

The full envelopments are used according to the limit and progress of the cure. They are sometimes used alone; and at other times in alternation with the body bandages—of full eight hours' continuance. They are usually applied in the morning at one o'clock, so that the patient may be allowed his sleep before midnight. Schrott holds, also, that the skin is in a more fit condition for the diminution or throwing off matters from the body after midnight than before that time.

These envelopments are usually resorted to once during the twenty-four hours; but in some cases the process is repeated the same day, constituting what is called the double-cure. This is often done in cases where time is an object; but in this stronger practice great care must be exercised lest the patient be injured instead of benefited.

The same rule as to rinsing the mouth is to be observed here as in the fore-cure; and the patient is not allowed to drink fluid of any kind, either while undergoing the envelopment or soon after it.

The washing of the whole body when coming out of the sheets is most imperatively forbidden.

*Diet in the Strong-Cure.*—The patient is allowed from two to six of the stale biscuits before referred to, each weighing, I should judge, about two ounces—perhaps less when they are dry. He is allowed all he desires of this kind of food; but the mouth is so dry and parched, and body so feverish, that he can not swallow a great quantity of such an article. The appetite goes off, for the most part, for the want of drink. All broths, soups, flesh meat, etc., are strictly prohibited.

In some cases where there is extreme dryness and heat of the throat, a very little wine is allowed with the dry biscuits.

*Drink in the Strong-Cure.*—The periodical abstinence from drinks is varied or determined by the amount of moral and physical strength of the patient. In cases of weak and timid persons there is allowed at first, daily, or every second day, a half pint or pint of wine, or wine-and-water; but later in the treatment the rules are made more stringent. With those who have sufficient self-denial, Schrott is pleased if they abstain from all drinks for the space of from two to five days. After this a small quantity of light Austrian wine is allowed under the following rules: Four or five hours after the usual dinner-time he commences with the wine; but before this he must prepare the stomach by taking a little water-soup or warm wine. After this preparatory process he commences drinking little by little, and taking between times a small quantity of the dry biscuit, and continues thus

drinking and eating until he has consumed two glasses. He increases the quantity of food and wine for some days, few or many according to the strength or courage he may possess, after which he again returns to the process of abstaining, before described.

The strong-cure is continued as long as the patient's power of endurance will admit of without endangering the constitution, provided the disease is not cured without. Improvement is known by the appearance of the tongue, by the urine, and the lessening or disappearance of the disease.

In the strong-cure, if he persevere according to the strict letter of Schrott's rules, the patient suffers most terribly with the thirst and fever induced by the want of drink. All this I shall endeavor hereafter to show to be not only unnecessary, but a positive hindrance in the cure of disease. It can do no possible good to keep a patient, day after day and night after night, in a fever, and almost without sleep, when a trifling quantity of water taken from time to time internally would suffice to make his condition comparatively a comfortable one. Were it not for the wet bandages and envelopments used, the treatment could not possibly be borne. The wet applications are much longed for by the patients, so refreshing are they to the body, especially when they are first applied to it.

If the strength is found to sink much under the strong-cure, the bandages and envelopments are left off for some days, and a little nourishing food given. A very small quantity of wine is also sometimes allowed, in quantity equal to half the amount of urine voided. But no broth, soup, or other liquid food whatever, is to be taken. After this the patient goes again to the strong-cure.

*The After-Cure.*—When the disease has been removed, and the pains of the body and the distresses of the mind are, so to say, healed, then commences the after-cure.

This is as follows: The envelopments are either left off entirely or are but seldom applied; but the same simple diet, as in the fore-cure, is still to be faithfully kept up. Beer is, however, sometimes allowed in small quantity. Only one, or at most two kinds of food, Schrott regards as best in the after-cure. At first a little drink only is taken, two hours after the meal; but in some cases a very little is allowed the patient while he is eating.

When the after-cure has been continued from two to four weeks, and the patient has regained his strength, and appears to be in all respects well, Schrott institutes a sort of proof treatment, in order to ascertain, as he says, whether the cure is in reality a perfect one.

This proof process is as follows: The patient lives from three to

four days exclusively on the dry-bread diet, with entire abstinence from all drinks, and is wrapped up in three to four wet sheets for eight hours continuance, daily. If no new coating of the tongue, or darkening or precipitation appears in the urine, he is pronounced well. But if these, or other morbid symptoms do occur, the strong-cure is to be continued as long as the case may require.

*Exercise.*—Schrott gives no particular rules on this point other than the general feelings and inclinations of the patient. If too great an amount of exercise is taken, the thirst and fever become greater, and, for this reason, the patient is not able to abstain from drink to so great an extent as Schrott desires.

*Clothing.*—This should be sufficient to keep the body at a comfortable temperature, but not so much in quantity as to hinder free transpiration from the skin.

After leaving off the treatment the patient should be very particular not to overdo in the matter of food. The good appetite is very apt to lead patients to excess.

*Phenomena in Chronic Disease.*—1. There is experienced a strong, oppressive thirst soon after commencing, especially in what is denominated the strong-cure. Schrott says, those who have been in the habit of drinking a good deal suffer most in this respect. As the cure progresses, or, in other words, as the body becomes more pure, the desire for fluid grows less.

2. In the beginning of the process the appetite is almost wholly lost, so that two or three of the small dry biscuits are often sufficient for the whole day, the patient eating according to the inclination of appetite. But in a few days, and after the morbid matter has to a considerable extent passed off from the body, and the tongue and mouth have become more moist, the appetite improves, so that a piece of stale bread and water-soup taste better than even the finest luxuries before.

3. The tongue is dry and covered with a white coating for a time at first; but later in the cure, as the morbid matter of the body becomes more loosened or set free, it changes to a yellowish or brownish color, and is often covered with a thick slime. Not unfrequently, too, this coating upon the tongue becomes quite black in appearance. The tongue loses the coating by degrees, beginning at its point, and as the purifying process goes on toward its termination, it takes on a beautiful and healthy reddish appearance. At first articles of food are insipid to the taste, and some nausea is experienced. Later there may be a sour, bitter, or metallic taste in the mouth; this last more particularly with those who have been much under the influence of mercury. Toward

the last the taste becomes saltish, which Schrott regards as a good omen. The taste also improves in proportion as the inward purification goes on. During the course of the process, the teeth become whiter and the gums more firm and red, indicating an improvement in the digestive organs.

4. The fat leaves the body and the muscles become flaccid, in proportion as the fasting is persevered in. But Schrott persuades his patients that there is nothing to fear from the recurrence of these symptoms. "We must," he says, "undergo a new birth of the system before we can become well, and this can only happen after the disappearance of the morbid matters from the body, and all the secretions have been purified."

5. A feverish excitement of the system, together with a feeling of debility, faintness, and depression is generally experienced. The patient becomes discouraged and melancholic, and is very excitable and sensitive to surrounding influences. He also experiences pains and soreness in the loins, feet, and sometimes in the joints. He becomes very tired of the sitting posture, and leans to one side or the other for support. But all these disagreeable symptoms, which are necessary in the process, grow by degrees less and less, as the morbid matter is eliminated from the vital economy. And when the body has at last grown pure, these unpleasant consequences disappear entirely, and the convalescent gains strength with inconceivable swiftness through the period of the after-cure.

6. The expanded stomach which was before tender to pressure, falls in by degrees and ceases to be painful. The patient also feels distinct movements in the intestines, and a rather burdensome rubbing together of the stomach and adjacent parts. There is also a drawing of the parts about the stomach toward the organ, in particular on such days as when the treatment is carried on to the fullest extent.

7. Those patients whose digestive organs have suffered a long time, throw off an incredible amount of expectoration while undergoing the strong-cure. This matter is first thick, tough, gelatinous, transparent, white, and slimy in character. Later it becomes gray, yellowish, or greenish, pus-like and offensive in quality. At times an increase of expectoration comes on, followed or attended by a febrile excitement of the system. At this time large lumps, as it were, of tough slimy substance are thrown off, and which almost choke the patient at the time. By degrees this expectoration grows less, and at length ceases during the cure.

8. In the beginning of the cure the urine is voided somewhat sparingly, but as the treatment progresses the secretion increases in

quantity, and this even when the patient has not taken a drop of fluid in his stomach. Its color is more or less red, usually, according to the nature of the case. As the urine passes, a burning sensation of the passage is sometimes experienced. Sooner or later it becomes cloudy on standing. The sediment is sometimes milky in appearance, sometimes clayey, and more or less red. After this there follows at different periods of time a formation of sediment, sometimes slimy, at other times like sand or earth, varying in color and appearance in different cases.

When the treatment is followed up perseveringly, the increase of urine comes on earlier, and forms a greater sediment; but there are some exceptions to this rule. In some cases also, it is necessary to follow up the treatment faithfully for some weeks, before the critical secretion from the kidneys can be effected. Sometimes, too, a cure is obtained with perhaps very little of such appearances from beginning to end.

In some very tardy cases, Schrott holds that taking daily a small quantity of warm wine will aid in bringing on an increase in the renal purification. But it should be remembered in reference to this point, that the imbibition of fluids of whatever kind tend necessarily to an increase of urine, and that we are not to infer that such an increase proves positively that the body becomes purified thereby. A mere increase in urine caused by taking more fluid, is certainly not a sufficient proof to the physiologist.

By continuing the treatment until the body becomes sufficiently purified, the urine becomes clearer and lighter in color, and greater in quantity. On the thirst days, even, there are sometimes three or four glasses voided, but with greater difficulty. The sediment diminishes gradually, until at last the urine remains clear, of a straw color, even at the end of forty-eight hours.

This appearance of the urine, and the cleaning off the tongue, are to be looked upon as an evidence that the patient may pass on to the after-cure.

9. The bowels cease to act, often for two or three weeks after the commencement of the treatment. I myself saw a man who had no fecal discharge for twenty-five days, and who told me that he suffered no inconvenience therefrom. There being no unpleasant feelings caused by this prolonged constipation, the patients never use any artificial means of causing them to act. When the discharge at last commences again, the matter comes in hard lumps or balls, which are often covered with thick slime or mucous matter, and sometimes with streaks of blood.

This constipation is not unfrequently broken in upon by the super-vention of diarrhea, attended with sharp and cutting pains in the bowels. A great deal of very offensive matter is often thrown off in this way. The discharges are variegated in color, and contain many times a good deal of mucous matters, and not unfrequently that which appears like pus, streaked with blood. Piles and hemorrhoids also appear in some cases. These symptoms are followed by a great improvement of the health.

The diarrhea sometimes takes place only in the after-cure; but not unfrequently the restoration to health is effected without any of these symptoms of critical action of the bowels. After a time the discharges become natural in frequency and character, and the old morbid symptoms vanish, and the bowels, instead of being torpid, constipated, and irregular as before, act in the easiest and most pleasant manner, not unfrequently twice during the day. Windiness of the bowels is very readily cured by this treatment.

10. The perspiration of the skin, insensible perspiration, or elimination from the cutaneous surface, is the means of removing a large amount of morbid matter from the body. This shows itself in the foul smell of the sheets, and the different colors which are sometimes observed on them.

Sensible perspiration sometimes appears in the beginning of the treatment, but later in its progress only an agreeable vapor is formed. Before perspiration appears there is sometimes experienced a pressure upon the brain, but which disappears as the sweat oozes forth. About the eighth hour of the sheets, there is often a feeling of increasing warmth and a new breaking out of perspiration, which is more agreeable than the former. By continuing these applications, the skin is rendered fresh and healthful in appearance.

Schrott claims that under his mode, old cases of gout, rheumatism, syphilis, etc., are in general readily cured. Often in the course of seven or eight days, the worst of chronic pains have disappeared. *Fistulæ* are cured without a scar. Sores and eruptions of long standing give out more matter at first, and then gradually grow less in the cure. In some cases the last traces of disease do not disappear until in the after-cure.

I have thus given, partly in Schrott's own words, and partly from conversations with him concerning his method, the main features of his treatment as he applies it in chronic disease. He also has a system for applying his treatment in acute disease, which consists for the most part in the use of wet sheets, bandages, and abstinence. In his plan of treating acute diseases, there is, of course, no *fore-cure*, tho



patient being put at once upon the *strong cure*. There is also the *after-cure* in the treatment of acute diseases.

Abstinence is by far too much feared in the treatment of acute diseases generally. We have good reason for believing that many a life has been destroyed by the indiscriminate feeding which is so often practiced among the sick. The safety of abstinence will be apparent when we remember how often persons have lain in fevers, dysentery, and other prostrating diseases, fourteen, twenty-one, and even more days without nutriment, and in the end doing well.

That Schrott is radically wrong in several particulars relating to his practice, every one who is at all acquainted with medical science will at once perceive. If his practice had been from the beginning based upon physiological principles, the results would have been far more satisfactory. For example, the sweating should have been avoided, and the method of keeping the skin so long at a time from the influence of the atmosphere in the long-continued envelopments, could but debilitate the system. Then, also, his notion in regard to abstaining from drink is altogether erroneous. We know that an animal can live more than twice as long fasting *with* water, and that if water is taken the sufferings of famishing are rendered much less. If Schrott had been in the habit of allowing his patients drink during the periods of abstinence, they would not only have got along much more comfortably in every respect, but the effects would have been much more salutary.

Among the considerations which have led me to publish in the present volume an account of the Hunger-Cure, are the following :

1. There is much error as regards diet in the practice of the Water-Cure generally, it being supposed by most persons that a large amount of food is necessary to enable them to endure the treatment.

2. There is almost everywhere in this country of prosperity and abundance an idea that full feeding is one of the best modes for keeping up the health and strength. The weaker a person may be, the more he must be urged to take food. The more feeble the stomach, which feebleness is also in connection with general debility, the more must it be goaded on by the free use of rich, and concentrated, and often highly seasoned food. The stomach is looked upon as being in some sense a crucible of fire in which to consume food. The feebler the flame, it is thought, the more fuel must be added to give it strength. But this is poor philosophy ; it never can answer in physiology to compare the human system to an inanimate machine. It is a sad begging of the question to suppose that because the stomach is weak it **must** be plied the more with food.

3. A particular class of persons have erred greatly in regard to diet. I refer to such as have adopted wholly, or in part, what is denominated the vegetarian system. Among this class many have been astonishingly cured by making a careful beginning. By degrees, however, not a few of these have gotten themselves into bad habits, and, so far as diet is concerned, have actually in the end gone from bad to worse. Thus, for example, a person has suffered many years with obstinate indigestion, and its attendant train of evils, and in some cases even symptoms of consumption have made their appearance. Every method that art can suggest has been tried, and yet the patient has, year by year, grown worse. At length a very careful, sparing, and rigid vegetable diet is commenced; superfine flour, that dietetic bane of American life, is avoided; the individual partakes of unbolted wheaten or rye bread, or mush of the same materials, rice, potatoes, well-cooked Indian mush, hominy, etc., together with good fruits in their season, and a moderate use of milk; flesh meat, butter, spices, sugar, molasses, and such like rich substances, are wholly refrained from; the individual even, perhaps, subsists upon a single dish, as brown bread and milk, or brown bread and water alone; he takes regularly such an amount, and *such only*, as the stomach can bear without suffering. If it can not bear eight ounces at a meal, he takes six; if it can not bear six, he takes four, or perhaps only a *single ounce* at a time in its beginning, and *never so much as to cause any oppression or discomfort of the system*. Thus he gives the feeble and worn-out stomach only what it can do; he allows it to begin, as it were, its second childhood—"to creep before it can walk." The stomach tells him when it needs food; if he takes too much even of the plainest kind, the organ resents the injury by causing oppression, fullness, and lassitude of the general system. Other good habits in regard to air, exercise, occupation, clothing, sleep, etc., are at the same time persevered in. By such a mode, carefully practiced for a time, longer or shorter, accordingly as the case demands, numbers have brought about most wonderful cures, and that, too, where all ordinary measures had failed.

Now, strange as it may appear, many of these persons go again into bad habits. Their appetite becomes good, and their relish for food again primitive and natural. Little by little, as the stomach grows stronger, they contract the habit of eating too much. They also indulge in articles of an improper nature.

Thus vegetarians generally, in this country, have actually in the end made bad matters worse. In order to make up in some measure for the lack of the stimulation caused by flesh meat, and to which they had been accustomed, they have eaten enormous quantities of sweets.

It is a law of the living economy that food to be healthful must consist partly of the nutritive principle, and partly of matter which is waste. Bulk, says Dr. Beaumont, in his world-famed physiological experiments, is as necessary as the nutrient principle in food. If a dog be kept wholly on sugar, butter, or lard, substances which contain no waste matter in them, he thrives apparently for a short time, and then pines away and dies. Even superfine bread and water will kill him in seven weeks, as was proved repeatedly in Magendie's experiments; but if he be fed on brown or military bread, or that which contains a considerable portion of the bran—this latter being composed principally of waste matter—he thrives perfectly well for any desirable length of time. Precisely the same principle holds good in regard to the human system. Men have been killed at sea by being kept for a considerable time on superfine bread.

4. I believe that medical men generally are in many errors in regard to diet. I am not sure but that they are as often wrong as the people themselves. Certainly their habits are not much in advance of those of the community at large. They drink freely of tea and coffee, one or both, almost to a man; tobacco, too, that vilest, and most disgusting, and abominable of all narcotics, is used by a large proportion of them. Nay, its habitual use is often recommended as a means of curing disease. They are as much, too, in the habit of eating superfine bread, rich food, pastries, and puddings, and the like articles, as any other class of men, and probably more so, for they are brought more than persons generally into temptation, as to the "good things of life." I believe, moreover, that the profession have generally very poor notions in regard to the great power of diet, abstinence, and fasting, as positive and most powerful means of curing disease. I hope, therefore, that these papers, while they are designed more particularly for the occasional reader, will at the same time be of service to some whose business it is to practice the healing art.

The Hunger-Cure has in some form or other been practiced for ages in Germany. The Germans are perhaps the most persevering and plodding nation the world has ever produced. Who but a German would at first follow out, in all its horrors of famishing and thirst, the Hunger-Cure, as practiced by John Schrott? It is to Germany that we are to look for many of the greatest improvements and discoveries that have ever been made by man.

The Hunger-Cure can hardly be said to be a system as yet. Of its great value we probably as yet know but little. I am, myself, the more I see of it, the more surprised at its good effects; and one great object I have in bringing it before the American people is, that

we may all of us, who love the truth, join and aid each other in the investigation of its merits.

I am now in the habit, and for years have been, of employing it in connection with the water treatment in various ways. Thus, if a person comes to us without an appetite, as is often the case, we commence the water treatment in some of its milder processes, and at the same time recommend total abstinence from all food. In a very short time the appetite returns, sooner, doubtless, than it would if the patient should keep on eating as before, without any relish for food.

If a person has a toothache—no matter how bad—provided there is not swelling and ague in the face, it is cured with certainty within twenty-four hours by abstaining from all food and from all drinks, except water. At any rate, I have known no case where such treatment has failed of complete success.

I have had in my practice some cases of urinary difficulty of long standing, in which fasting has been of remarkable service. In these cases, where it was necessary for the patients to rise often in the night to void urine, by fasting a whole day at a time the symptoms have been wonderfully alleviated. In some instances, patients of this class have passed two, and even three, whole days without food, taking a little water instead, and in this way the ailment has been most astonishingly mitigated.

In chronic piles, often one of the most obstinate and troublesome, and not unfrequently one of the most painful affections, fasting is a most efficacious remedy. I have known cases where to evacuate the bowels would put the patient into an agony, amounting almost to spasms. Now, in such cases, the water treatment, good as it is, comes, in my estimation, far short of what may be accomplished by fasting alone. In these cases, and there are not a few of them, let the patient abstain resolutely from all food three or four days, and he will be convinced of the advantages to be derived from the course. The bowels, in the first place, cease to act, and in the second, when they do act, much less inconvenience is experienced. He may then nourish the system carefully for three or four days, at the end of which time he will find himself at least as strong as when he commenced the experiment, generally stronger, and in all respects better. Such an experiment we do not pretend will cure—chronic disease is too hard of eradication for that; but we can make the experiment over and over again, and each successive one will be found an important step in combating the disease.

The Hunger-Cure is susceptible of immense variation in all the varieties and shades of disease; and I would here again urge that all, who may become acquainted with what has been said on the

subject, and have need, at once commence experimenting upon it. At first one meal only may be omitted—as, for example, the evening meal. Afterward two, or even three meals, may in succession be abstained from. We sometimes advise a person to fast Monday, eat Tuesday, fast again Wednesday, eat Thursday, fast Friday, and eat Saturday and Sunday, while, at the same time, a moderate course of water treatment is practiced every day but Sunday, on which day a morning bath only is taken.

The principle on which the Hunger-Cure acts is one on which all physiologists are agreed, and one which is readily explained and understood. We know that in animal bodies the law of nature is for the effete, worn-out, and least vitalized matter first to be cast off. We see this upon the cuticle, nails, hair, and in the snake casting off his old skin. Now in wasting or famishing from the want of food, this process of elimination and purification goes on in a much more rapid manner than ordinarily, and the vital force which would otherwise be expended in digesting the food taken, acts now in expelling from the vital domain whatever morbid matters it may contain. This, then, is a beautiful idea in regard to the Hunger-Cure—that whenever a meal of food is omitted, the body purifies itself thus much from its disease, and this becomes apparent in the subsequent amendment, both as regards bodily feelings and strength. It is proved, also, in the fact that during the prevalence of epidemics, those who have been obliged to live almost in a state of starvation, have gone free from an attack, while the well fed have been cut off in numbers by the merciless disease.

#### OF DIET GENERALLY.

I am here led to make some remarks on diet generally, considering, as I do, that the existing erroneous notions upon the subject are the cause of a vast amount of disease. I must also assert that I am an advocate of what is popularly termed the *vegetarian* system, or, in other words, of the doctrine *that it is not natural for man to eat flesh*.

Whenever we speak of this subject, the first thing that objectors, professional and non-professional, bring up is the character of dental organs. Say they, "Man has, among others, canine teeth, like those of a dog; and that, therefore, a portion of his aliment, at least, should consist of flesh." The argument, if such we may call it, is a reference to comparative anatomy.

Now if this is the plan of reasoning to be adopted, we are very glad of meeting our opponents; and every one will perceive, on a moment's reflection that the *ourang-outang* is the animal which, in anatomical structure most nearly resembles man.

Fig. 269.

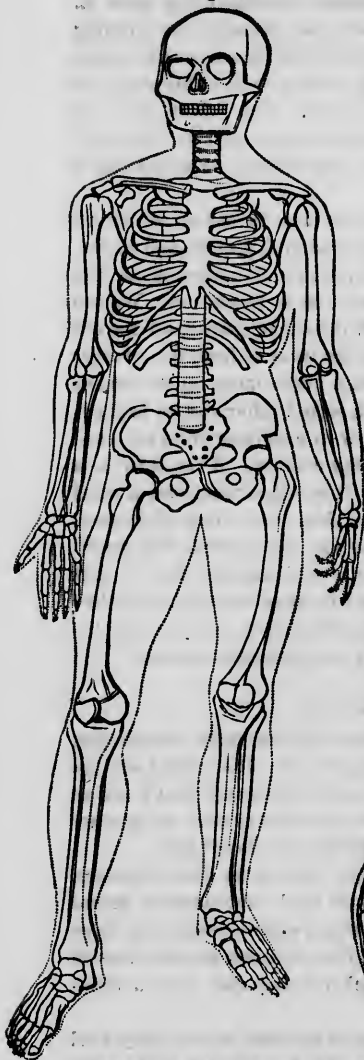
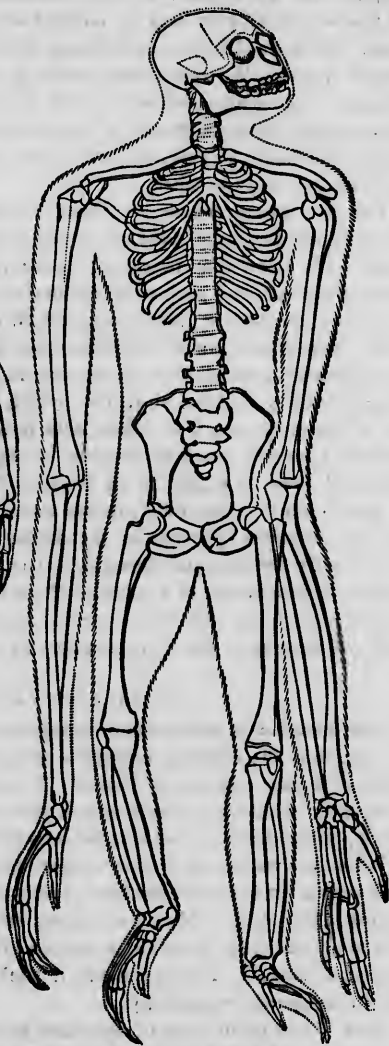


Fig. 270.



THE HUMAN SKELETON COMPARED WITH THAT OF THE OURANG-OUTANG.

The number and order of teeth are the same in the one as the other, the jaws and teeth together resembling so nearly those of man that they

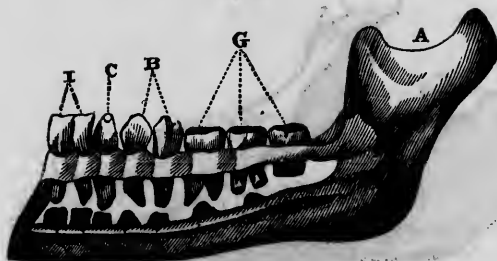
are easily mistaken for them. "The whole digestive apparatus of both are precisely alike; and even the entire conformation of the body of the ourang-outang, dietetically or physiologically, resembles the human animal incomparably more nearly than any other animal does." Now it is well known that although the ourang-outang may be taught to eat flesh, the same as any other animal, he yet in no sense belongs to the carnivorous or omnivorous species of the animal creation.

Fig. 271.



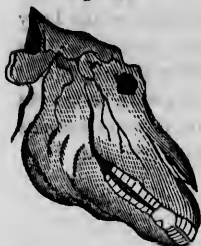
JAWS AND TEETH OF AN OURANG-OUTANG.

Fig. 272.



HUMAN JAW AND TEETH.

Fig. 273.



SKULL OF THE HORSE.

But to place this matter in a still stronger light, let some more illustrations be given. Fig. 273 represents the skull, jaws, and teeth of a horse. The incisors, in front, serve for cropping the grass and other herbage, and the molars, which are placed back of these, for grinding or comminuting the food—a wise adaptation of the parts to the offices they are to perform.

Fig. 274.



JAW AND TEETH OF THE CAMEL.

Fig. 274 exhibits the masticatory organs of the camel. Here, also, we perceive the same evidences of design. The front teeth, being arranged irregularly, are admirably adapted to breaking up the coarser forms of vegetable food, while the molars stand in such a manner as to favor the mashing or grinding process.

Descending in the scale of animal creation, we come to the *omnivora*; and as a fit illustration, we give that of the under jaw and teeth of the hog.

Fig. 275.



UNDER JAW AND TEETH OF THE HOG.



Fig. 276.



JAWS AND TEETH OF A PANTHER.

Fig. 277.



JAWS AND TEETH OF A MINK.

Fig. 278.

Of the *omnivora*, the representation of the jaws and teeth of the *tiger*, *panther*, *lion*, and *mink* are likewise good illustrations.

Fig. 279.



TIGER'S UNDER JAW.



YOUNG LION.

In comparing the foregoing illustrations, it will be seen, first, that there is a wise adaptation of the organization of each animal to its dietetic wants, and, second, that *man's anatomical structure, so far as the teeth and jaws are concerned, is the farthest possible removed from that of the carnivora and omnivora*. Man is, therefore, in no sense naturally a carnivorous or omnivorous animal. The argument is brief, I admit, but it is as strong and conclusive as it is possible for anatomical evidence to make it. Besides, all well-ascertained physiological, pathological, chemical, and, I may add, moral and intellectual evidence, goes to establish the position I have taken in regard to the natural dietetic character of the race.

The rules of diet, it will be seen, therefore, are few and simple, when once they are well understood. In the first place, it is not natural for man to eat flesh. Second—great changes should not be made suddenly, and for this reason it may be found necessary, for a long time yet, to furnish more or less of flesh meat in the establishments for Water-Cure. Third—all medicinal and stimulating articles, whether in food or drink, which afford no nutriment to the system, should, as far as possible, be avoided. Fourth—the food should contain a proper amount of innutritious, as well as nutritious matter, a law of nature which is almost everywhere in society violated. And, lastly, the most important of all dietetic rules, THE QUANTITY OF ALIMENT SHOULD BE SUITED TO THE NATURAL DEMANDS OF THE SYSTEM.

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Concerning the subject of Diet, in all its various bearings, I respectfully refer the reader to the elaborate and comprehensive treatise entitled "THE ILLUSTRATED HYDROPATHIC COOK BOOK," by R. T. Trall, M. D.; Smith's "FRUITS AND FARINACEA, THE PROPER FOOD OF MAN," American edition, with Notes by Dr. Trall; Dr. Alcott's "VEGETABLE DIET;" Dr. Lambe on "WATER, AND VEGETABLE DIET;" Fowler's "PHYSIOLOGY, ANIMAL AND MENTAL;" Cornaro on: "A SOBER AND TEMPERATE LIFE;" Saxe's "ORGANIC LAWS;" all of which may be obtained of the publishers of this volume.

## APPENDIX.

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### ON THE FORMATION AND MANAGEMENT OF WATER-CURE ESTABLISHMENTS.

It will be admitted on all hands, that the matter of seeking lost health is one of the most important of human employments ; and it is an equally well-recognized fact at the present day, that the practice of water, in public establishments erected for the purpose, is among the “ wants ” of the times. Some remarks, therefore, on the formation and management of institutions of this kind will here be in place.

**THE LOCATION.**—A “ Water-Cure ” should possess the best possible advantages of air and scenery. The place selected should be free from fogs and all malarious influence ; and the climate should be one that is not liable to sudden changes and great extremes of temperature. A mountain location of the proper kind is probably the best, all things considered, for the majority of patients ; although lakes, rivers, and the sea-shore often afford pleasant and suitable places. It must be admitted, however, that patients who have weak lungs had better avoid all fogs, and all situations where land and sea air must necessarily come together.

**THE WATER.**—This is one of the most important of all matters connected with hydropathic practice. It is a lamentable fact, that many of the “ cures ” in this as other countries where such are established, have only water of a second or third-rate quality, and too often but a meager amount of that. The time is not far distant when establishments of this kind will be avoided, as they in truth should, while those which have a good supply of **PURE SOFT WATER**—and there are numbers of such—will be sought out. With the best of air and water it is often difficult enough to cure disease. How much more so when these are of an inferior quality or kind

**THE BUILDING.**—In the beginning of a reform, such as the Water-Cure, it is not to be expected that expensive architecture can be brought to bear. We, however, who know and appreciate better than others the advantages of pure air, should be very careful in regard to the construction of a building that is to be occupied by the sick. The rooms should be as large and airy as circumstances will admit of, and as a secondary matter, but one also of importance, the house should be made a pleasant and attractive one. The effect upon the mind as well as the body is always to be taken into account.

**EXERCISE.**—One of the greatest difficulties patients have to contend with in water-cures, as conducted at the present day, is to “kill time.” As in going to sea, so in Water-Cure establishments, “how shall we contrive to wear away weary hours?” is often asked. Now, in my humble estimation, there is one great remedy for this difficulty, and that is to teach patients the value of **WORK**. I know it will be said, gymnastics are to be recommended; and this I admit. But at the same time also, it should be remembered that the mind very soon becomes tired of these, while in useful labor such is not the case. I say, therefore, Water-Cure establishments *should be* conducted in such a way that every one can have the means of employing the bodily powers regularly in something, that while it gives tone and vigor to the physical man, engages and interests also the mind.

**THE SEASON.**—Water-Cure invalids are said to be heroic; but there is need assuredly of their being, as a class, still more so. At present, our “cures” are crowded to overflowing during the hot season, while in the winter-time they are allowed well-nigh to run down for the want of support. It is well understood by all hydropathic physicians of any note, that for the great majority of patients, the cool and cold seasons are much the most favorable for the eradication of disease. In most cases the patient may, if he but will, gain as much in one month of good winter treatment, as he can do in twice or thrice that time in summer. A better state of hydropathic knowledge diffused among the people generally will assuredly, ere long, work a change for the better in this respect. We shall yet see our “cures” thronged as thickly in the autumn, winter, and spring, as they now are for a short time during the summer.

**THE EXPENSES.**—There is an idea abroad that Water-Cure establishments are great money-making concerns; and allopathic objectors tell us, moreover, “that they do not expect to arrest the streams which are daily pouring their golden tides into the pockets of hydropathic practitioners,” because, ~~forsooth~~, the **PEOPLE** are at fault. But the truth is, hydro

pathy, like all other reforms, must, in its beginnings, be conducted with loss; *i. e.*, the amount of labor expended in it would, if laid out in an already well-established business, be remunerated more liberally. The time will soon come, however, when Water-Cure will be cheapened. The establishments may be filled more continuously through the year; and improvements of various kinds will be made which will enable us to afford the best of advice and treatment at a less price than has hitherto been done.

**MEDICAL ADVICE.**—While on the one hand the medical director of a Water-Cure establishment may have too much business, or exhibit negligence or carelessness in his duties toward those who seek his advice, it is equally true on the other, that patients sometimes expect too much of his services. How often, indeed, do we find that a nervous subject would be glad to converse with the physician for hours, daily, respecting his ten thousand complaints? And if he does not pay him that amount of attention he desires, he is forthwith displeased, and perhaps abandons the cure, to try some other institution where the same thing is to be gone over with again. Now, it should be understood by such persons, that once the physician has made a thorough examination of the case, the less the disease is conversed about the better. Patients should, as much as possible, keep their minds off their own miserable selves. If a crisis comes on, if any considerable change takes place, or if the treatment seems to disagree with the patient, the physician should be made acquainted with the fact. But otherwise the patient should never commence a conversation with the physician respecting his ailments at all. The medical adviser, if he be faithful, will make inquiry soon enough; and if he is not faithful he should be shunned altogether. I repeat, this allowing nervous patients in a Water-Cure establishment, to harp continually about their multitudinous ailments, most of which are imaginary, is a great evil; and the physician who permits it, is either mistaken in his calling or a mere panderer for pecuniary gain.

**MENTAL IMPROVEMENT.**—A Water-Cure establishment should be a school—a place of study; not one, indeed, in which the “toil of brain” should be carried to its fullest extent, but in a reasonable degree the mind should, so to say, be mentally amused. I know there are those who maintain that the brain should be left in the most quiescent state possible; in other words, that the patient should, so far as mentality is concerned, live a sort of mushroom or shell-fish life of inactivity mentally while undergoing a course of water treatment. But if we consider the true principles of mental philosophy, we should become convinced that the mind is not

capable of any such inactivity; and that if it is not occupied with something that is useful, it will wander off into "bye and forbidden paths," or at the very best prey upon itself.

I would therefore have every hydropathic establishment, to a certain extent, an educational one. There should be lectures on a great variety of topics, apparatus of various kinds for the elucidation of scientific subjects, readings, recitations, etc. Especially should anatomy, physiology, and hygiene, in all their bearings, be entered into fully, as opportunity might offer. One of the most important things also, would be to have a department for the medical and orthopedic treatment, and education of weakly and deformed children and others, the whole matter, of course, to be conducted in such a way that the body would not become debilitated in any respect by the exercise of the mind.

**MUSIC.**—Luther often found, he tells us, that when all other means failed, "music would drive the Devil at once away from him." It is no doubt true, that music is one of the best possible means of repelling evil spirits of whatever kind. The art, although, like all other good things, it may be abused, is one of the most beautiful and noble that can be cultivated by man. It should, therefore, have a place in every sanitary establishment; and practiced within reasonable bounds, its effects can but be salutary in all respects.

It will be seen from the foregoing remarks that I would have every Water-Cure establishment to be a HOME for the patient—a home physically, morally, mentally, socially—a home in every sense. The dignity of manual labor, of agriculture and horticulture, the delights of science, and the beauties and glories of nature everywhere about us—all of these should be brought to bear in that heaven-born art of healing the sick. Add to this, there should always be cherished the best of feelings and good faith among those who inhabit such a home; among "those who minister, and those who are ministered unto."

# GLOSSARY.

## A.

**ABDOMEN**, the belly.  
**ABNORMAL**, unnatural.  
**ABREIBUNG**, rubbing wet sheets.  
**ACETIC**, sour, acid.  
**ACETABULUM**, hip-joint cavity.  
**ACUTE**, of short duration.  
**ADENOLOGY**, science of the glands.  
**ADEPS**, fat.  
**ADIPOSE**, fatty.  
**ADYNAMIC**, relating to debility.  
**ALBUMEN**, white animal substance.  
**ALLOPATHY**, the common practice.  
**ALVEOLI**, of a socket.  
**AMORPHOUS**, irregular.  
**ANÆMIA**, bloodlessness.  
**ANAESTHESIA**, insensibility.  
**ANASARCA**, general dropsy.  
**ANASTOMOSIS**, communication.  
**ANATOMY**, physical structure.  
**ANHEMIA**, bloodlessness.  
**ANOREXIA**, loss of appetite.  
**ANTIPHLOGISTIC**, lowering.  
**APPARATUS**, an assemblage of organs.  
**APTHÆ**, sore mouth.  
**AREOLA**, circle around the nipple.  
**ARTERIAL**, of the arteries.  
**ARTAXIO**, irregular.  
**ARTICULAR**, relating to joints.  
**ASPHYXIA**, suspended animation.  
**ASTRAGALUS**, heel bone.  
**ATONY**, debility of a part.  
**ATROPHY**, wasting.  
**AUDITION**, hearing.  
**AXILLA**, the armpit.  
**AZOTE**, nitrogen.

## B.

**BADEDENIER**, bath-man.  
**BICEPS**, two-headed muscle.  
**BICUSPID**, a two-pointed tooth.  
**BICUSPIDATI**, the two-pointed teeth

**BIFURCATION**, passing two ways.  
**BILE**, secretion of the liver.  
**BILIARY**, relating to the bile.  
**BOUGIE**, flexible, dilating tube.  
**BRACHIAL**, of the arm.  
**BRONCHIA**, tubes of the lungs.  
**BURSÆ MUCOSA**, sacs of fluid.

## C.

**CALCULUS**, a stone.  
**CALLOLL**, concretions of gravel.  
**CAPILLARY**, hair-like tube.  
**CAPSULE**, membranous sack.  
**CARBONIC**, relating to carbon.  
**CARDIAC**, relating to the heart.  
**CATAMENIA**, the menses.  
**CELLULAR**, composed of cells.  
**CEPHALALGIA**, headache.  
**CERVIX**, neck.  
**CERVIX UTERI**, neck of uterus.  
**CHLOROSIS**, green sickness.  
**CHLOROTIC**, having chlorosis.  
**CHYLOPOIETIC**, relating to chyle.  
**CHRONIC**, of long standing.  
**CICATRIX**, a scar.  
**CINERITIOUS**, ash-like.  
**COLLIQUATIVE**, exhausting.  
**CONDYLE**, prominence of bone.  
**CONJUNCTIVA**, covering of the eye.  
**CONVOLUTIONS**, windings.  
**CORPUSCLE**, a minute particle.  
**CORTICAL**, exterior, outer.  
**CRUCIALLY**, crosswise.  
**CRURAL**, of the leg.  
**CUTICLE**, scarf-skin.  
**CUTIS VERA**, the true skin.

## D.

**DEMULGENT**, mucilaginous substance.  
**DEFECATION**, voiding excrement.  
**DERMOID** of the skin.  
**DESSICATION**, drying.

**DESQUAMATION**, peeling off.  
**DILUENT**, thinning.  
**DIAPHORETIC**, sweating.  
**DIAPHRAGM**, a partition.  
**DIASTASIS**, amount of separation.  
**DIASTOLE**, dilatation of the heart.  
**DIURETIC**, promoting urine.  
**DISCRETE**, distinct.  
**DORSAL**, of the back.  
**DYNAMIC**, of the vital force.  
**DYSPNEA**, difficult breathing.  
**DYSURIA**, difficult urinating.

## E.

**ECCLECTIC**, of all systems.  
**ECHYMOSIS**, a dark or yellow spot.  
**EDEMA**, swelling.  
**EFFLUVIUM**, emanation.  
**ENAMEL**, covering of the teeth.  
**EMMENAGOGUE**, aiding the menses.  
**EMOLLIENT**, soothing.  
**EMPHYSEMA**, inflation.  
**ENCEPHALON**, the brain.  
**ENCIFORM**, resembling a sword.  
**ENCYSTED**, of a sack.  
**ENDEMIC**, of a locality.  
**ENDOSMOSE**, imbibition.  
**EPIDEMIC**, general, prevailing.  
**EPIDERMIS**, scarf-skin.  
**EPIGASTRIC**, over the stomach.  
**EPISPASTIC**, blistering.  
**EPITHELIUM**, thin, cuticular membrane.  
**ERECTILE**, rising.  
**ERUCTION**, belching of wind.  
**ESCHAROTIC**, producing a sore.  
**EUTHANASIA**, easy death.  
**EXOSMOSE**, transudation.  
**EXCREMENTS**, alvine discharges.  
**EXPIRATION**, breathing outward.  
**EXTENSOR**, extending.  
**EXTRAVASATED**, settled.  
**EXUDATION**, throwing out.

## F.

**FACIAL**, relating to the face.  
**FAUCES**, parts of the throat.  
**FASCIÆ**, an extension or covering.  
**FÆCES**, excrements.  
**FECULENT**, like feces.  
**FEMUR**, thigh bone.  
**FENESTRÆ**, an opening.  
**FIBROUS**, having fibers.  
**FILAMENT**, a fine thread.  
**FISSURE**, a crack or slit.  
**FORAMEN**, a hole.  
**FLEXOR**, drawing up.

**FOLLICLE**, a small gland.  
**FIBULA**, outer bone of the leg.  
**FRÆNUM**, bridle of the tongue.  
**FUNCTION**, the office of a part.  
**FUNGIFORM**, like a fungus.

## G.

**GANGLION**, a bunch in a nerve.  
**GANGRENE**, mortification.  
**GASTRIC**, of the stomach.  
**GASTRODYNIA**, pain of stomach.  
**GASTRO-ENTERIC**, of the stomach and bowels.  
**GLOBUS HYSTERICUS**, hysteria of the throat.  
**GLOSSAL**, of the tongue.  
**GLENOID**, articular cavity.  
**GLOSSO-PHARYNGEAL**, of pharynx and tongue.  
**GLOTTIS**, opening of the larynx.  
**GLUTEUS**, muscle of the hip.  
**GRANULATIONS**, growths in ulcers.  
**GRUMOUS**, clotted.  
**GYMNASTIC**, relating to exercise.

## H.

**HEMICRANIA**, one-side headache.  
**HEMIPLEGIA**, one-side palsy.  
**HEMOPTYSIS**, lung hemorrhage.  
**HEMORRHAGE**, discharge of blood.  
**HEPATIC**, of the liver.  
**HOMEOPATHY**, like curing like.  
**HUMORS**, fluids of the body.  
**HYDROPATHY**, the water-cure.  
**HYGIENE**, laws of health.  
**HYPOGLOSSAL**, under the tongue.

## I.

**IDIOPATHIC**, original.  
**IDIOSYNCRASY**, a peculiarity.  
**INCISOR**, a cutting tooth.  
**INGESTA**, the food and drink.  
**INGUINAL**, at the groin.  
**INOSCULATE**, to unite.  
**INHALATION**, breathing inward.  
**INNOMINATA**, nameless bone.  
**INSOMNIA**, sleeplessness.  
**INSPIRATION**, breathing inward.  
**INTERCOSTAL**, between the ribs.  
**INTESTINAL**, of the bowels.  
**INTUMESCENCE**, enlargement.  
**IRRITABILITY**, ultimate vital property.  
**IRRITANT**, causing irritation.  
**IRRITATION**, undue excitement.

## J.

**JACTITATION**, jerking.  
**JEJUNUM**, small intestine.  
**JUGULAR**, belonging to the throat.



## L.

**LABYRINTH**, internal ear.  
**LACHRYMAL**, of the eye.  
**LAMINA**, a thin plate.  
**LENTOR**, coldness in the blood.  
**LESION**, injury, hurt.  
**LIENTERY**, liquid diarrhea.  
**LITHONTRIPTIC**, dissolving stone.  
**LARYNX**, top of windpipe.  
**LARYNGITIS**, sore throat.  
**LIGAMENT**, a band.  
**LOBE**, a small round body.  
**LUMBAGO**, rheumatism of the loins.  
**LUMBAR**, of the loins.  
**LUTED**, inclosed.  
**LUXATION**, dislocation.

## M.

**MANUAL**, by the hand.  
**MALARIA**, foul marsh air.  
**MALIGNANT**, of bad character.  
**MARASMUS**, wasting.  
**MARROW**, fat of the bones.  
**MASTICATION**, chewing.  
**MAXILLARY**, of the jaw.  
**MEATUS**, an opening.  
**MEDULLA**, marrow, or pith.  
**MEDULLA SPINALIS**, spinal cord.  
**MEMBRANOUS**, of membrane.  
**MENINGITIS**, inflamed cerebral membrane.  
**MENSTRUUM**, a solvent.  
**MESENTERIC**, relating to the mesentery.  
**METACARPAL**, of the arm.  
**METASTASIS**, change of seat.  
**MICTURITION**, making water.  
**MIDRIFF**, the diaphragm.  
**MODUS OPERANDI**, mode of operation.  
**MOLECULAR**, of small atoms.  
**MUCO-PURULENT**, like mucus and pus.  
**MUCUS**, animal mucilage.  
**MUSCLE**, flesh.  
**MUSCULAR TISSUE**, fleshy tissue.

## N.

**NARCOTICS**, stupefying drugs.  
**NASAL**, of the nose.  
**NASUS**, the nose.  
**NECROSIS**, disease of bone.  
**NERVINE**, acting on the nerves.  
**NERVOUS**, having weak nerves.  
**NEURALGIA**, nerve pain.  
**NEURILEMA**, sheath of a nerve.  
**NEUROSES**, nervous diseases.  
**NIGRUM**, black.  
**NODULAR**, of a node.  
**NORMAL**, right, natural.

**NOSOLOGY**, classification of disease.  
**NUTRITION**, growth, replenishment.

## O.

**OBESITY**, fatness.  
**OCCIPUT**, back of the head.  
**OCULUS**, the eye.  
**OLFACTORY**, of smell.  
**OPHTHALMIA**, inflamed eye.  
**ORGANIC**, having organs.  
**OSSEOUS**, bony.  
**OVA**, an egg.

## P.

**PALMAR**, of the hand.  
**PALPEBRARUM**, eyelid.  
**PAPILLA**, tent-like prominence.  
**PARALYSIS AGITANS**, shaking palsy.  
**PAROTITIS**, mumps.  
**PAROTID**, the largest salivary gland.  
**PATELLA**, knee-pan.  
**PATHOLOGY**, doctrine of disease.  
**PETROUS**, hard, stonelike.  
**PHARMACY**, preparation of drugs.  
**PHLEGMASIA**, inflammations.  
**PHLEOMON**, inflammation.  
**PIA MATER**, inner membrane of the brain.  
**PHAGADENIC**, rough, ragged.  
**PHLOGISTIC**, of high inflammation.  
**PLANTAR**, muscle of the hand.  
**PLEXUS**, network of vessels or nerves.  
**POPLITEAL**, back of the leg.  
**PRECORDIA**, region near the heart.  
**PROCESS**, a prominence.  
**PRETERNATURAL**, unnatural.  
**PROPHYLACTIC**, preventive of disease.  
**PURPERAL**, of childbirth.  
**PULMONARY**, of the lungs.  
**PUPIL**, opening of the eye.  
**PURULENT**, pus-like.  
**PYLORUS**, lower opening of the stomach.  
**PYREXIA**, general fever.

## R.

**RADICLE**, germ of a root.  
**RADIUS**, a bone of the arm.  
**RAMUS**, a branch.  
**RECREMENTITIAL**, superfluous.  
**REGIMEN**, regulated habits and food.  
**REFRIGERANT**, cooling.  
**RENAL**, of the kidneys.  
**RESOLUTION**, fading away.  
**RESPIRATORY**, relating to breathing.  
**RETINA**, inner coat of the eye.  
**RUBEFACIENT**, reddening.  
**RUGA**, a fold.  
**RUGOSE**, full of wrinkles.

## S.

SACRUM, bone of the pelvis.  
 SALIVA, fluid of the mouth.  
 SALIVARY, of the mouth.  
 SANIES, thin, watery fluid.  
 SCHIRIUS, a hardening.  
 SCORBIICULUS CORDIS, pit of the stomach.  
 SCORBUTIC, scurvy-like.  
 SEDATIVE, lowering.  
 SEPTUM, a division.  
 SEBACEOUS, relating to oil.  
 SECRETION, matter secreted.  
 SENSATION, nervous impression.  
 SEROUS, watery.  
 SIGMOID, resembling an S.  
 SKELETON, the bones.  
 SORDES, foul matters.  
 SPHINCTER, contracting muscle.  
 SPORADIC, scattering.  
 STEATOMATOUS, fatty.  
 STERNAL, toward the breast bone.  
 STERNUM, the breast bone.  
 STIMULANT, an excitant.  
 SUBMAXILLARY, under the jaw.  
 SUTURE, a seam.  
 SYMPTOMATIC, of symptoms.  
 SYNOPE, fainting.  
 SYNOCHA, high and low fever united.  
 SYNOCHUS, high fever.  
 SYNOVIA, fluid of the joints.  
 SYNOVITIS, inflamed joint.  
 SYSTEM, method, or assemblage.

## T.

TARSUS, posterior of the foot.  
 TEMPERAMENT, constitutional habit.  
 TENDO ACHILLIS, cord of the heel.  
 TENDON, a cord.

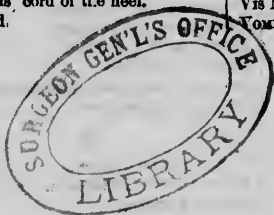
TENESMUS, bearing-down pain.  
 TENSIVE, tight.  
 TIBIA, large bone of the leg.  
 THORACIC, of the chest.  
 THERAPEUTICS, healing disease.  
 TIO DOULOUREUX, face nerve-ache.  
 TISSUE, minute structure.  
 TONE, power, strength.  
 TONIC, a strengthener.  
 TORMINA, griping pain of bowels.  
 TRACHEA, windpipe.  
 TRACHEITIS, croup.  
 TRUNK, the principal part.  
 TUBERCLES, small hard knots.  
 TUBEROSITY, a protuberance.  
 TURGESCENT, over-fullness.  
 TURGID, full, plethoric.  
 TYMPANUM, the middle ear.  
 TYPHOID, like typhus.  
 TYPHUS, low fever.

## U.

ULNA, bone of the forearm.  
 URIC, relating to the urine.  
 UVULA, hanging from the palate.

## V.

VACCINE DISEASE, cow-pox.  
 VARICOSE, swollen.  
 VASCULAR, abounding in vessels.  
 VENESECTION, bloodletting.  
 VERMIFUGE, worm-destroying.  
 VENOUS, of the veins.  
 VESICULAR, like a vesicle.  
 VISCERA, vital organs.  
 VISCUS, an organ.  
 VIS MEDICATRIX NATURA, healing power.  
 VOMER, bone of the nose.



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